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C O N T E N T S

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SWEDEN'S AGRICULTURE AND THE WAR . . . . .

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Sweden is noted for its high standard of living and its efficient agricultural production. Its farms are chiefly small and owner-operated, and the use of cooperative enterprise is widespread. Although Sweden is the fourth largest country in Europe, most of its land is not suited for agricultural production, due to extensive forests, considerable mountainous, stony, and swampy land, and the short growing season of the section extending north of the Arctic Circle. The country's greatest natural resources are its forests, iron ore deposits, and its water power from mountain streams. Nevertheless agricultural production, principally in the south and along the eastern coast, has been increased to a point where Sweden is nearly self sufficient and is able to export considerable quantities of livestock products. The war blockade cuts off a large part of Sweden's market for agricultural exports, as well as for the even more important exports of forest and mineral products. Vital import supplies of concentrate feed, oilseeds, and fertilizer have also been cut off. Consequently important changes are necessary in the country's agricultural production and trade. For United States trade, the cessation of shipping to Sweden means the loss of an important export market for about 17 million dollars' worth of farm products, chiefly cotton, tobacco, fruit, and grain.

PHYSICAL BACKGROUND

Sweden is of about the same size and shape and has approximately the same population as the state of California. The country is roughly 150 to 250 miles wide and more than 1,000 miles long, stretching from the southern part of Denmark to near the Arctic Ocean. Its area of 173,035 square miles is almost as large as that of France and twice as large as Great Britain, but Sweden's population of 6,341,300 is only about one-seventh that of France or Great Britain. Although two-thirds of the people live in rural areas, only about one-third are engaged in agriculture. The percentage distribution by occupation in 1935 was as follows:

	Percent
Agriculture and forestry	34 2
Industry and mining	31 7
Transportation and commerce	15 5
Fishing	0 6
Other	18 0
Total	100 0

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CLIMATE AND RAINFALL

The climate is warmer than that of most countries in the same latitude, due to the tempering effects of the Gulf Stream along the western coast of the Scandinavian Peninsula. Sweden, with about 15 percent of its territory within the Arctic Circle, is about as far north as Alaska and the Hudson Bay, yet the January mean temperature at Stockholm is 27° F., or about the same as that of Boston or Cleveland. Winters in the north of Sweden are much more severe, due partly to the fact that the altitude is higher and that mountains in the northwest cut off the warm winds from the Gulf Stream, while cold easterly winds from Siberia prevail. Summer temperatures are relatively uniform throughout the country. The July mean temperatures are 58° to 61° F., or about 10° to 20° cooler than in the northern United States.

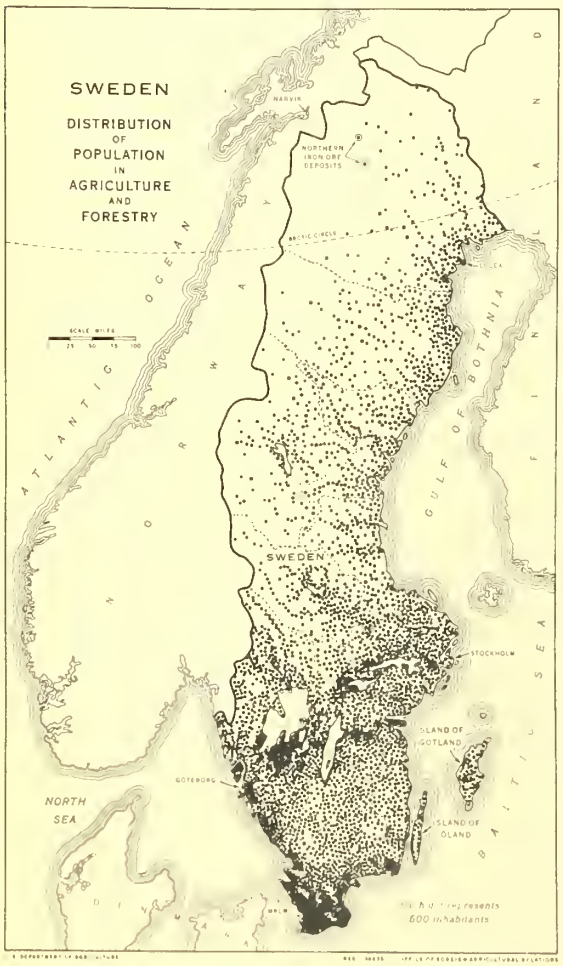

Figure 1.-Swedish population engaged in agriculture and forestry.

The growing season is short; even in southern Sweden it is too short and cool to grow corn, and in the extreme north hay, potatoes, and 6-row barley are the only principal crops which can be grown. Next in ability to withstand the cold and the short growing season are oats and, to a lesser degree, rye. Wheat cultivation is limited to the southern section. According to official calculations[1] the average number of days of summer and winter are as follows:

	Summer days	*Winter days*
Lapland (north)	88	186
Stockholm	124	121
Extreme south	142	72

In Karesvando, in the extreme north, the sun is above the horizon continuously for 53 days and nights.

Precipitation is not heavy or well distributed. Most of the rainfall occurs in the late summer and fall, while the spring and early summer are relatively dry. Annual precipitation varies from 30 inches along the southwestern coast to 17 inches in the east, and averages 20 inches for the country as a whole, roughly comparable with that of our western Great Plains. In regions of lightest rainfall the production of bread grains is relatively more important, whereas in those with greater rainfall dairy farming and the production of oats and grass predominate.

[1] *The Sweden Year-book, 1936*, Almqvist & Wiksells Boktryckeri, Stockholm, 1936.

TABLE 1.—*Land utilization in Sweden, 1939*

LAND USE	ACREAGE	PERCENTAGE DISTRIBUTION - OF CROPLAND	PERCENTAGE DISTRIBUTION - OF ALL LAND
	1,000 acres	*Percent*	*Percent*
CROPLAND			
Grains:			
Wheat	328	3.9	–
Rye	462	5.0	–
Barley	279	3.0	–
Oats	1,646	17.8	–
Mixed	628	6.8	–
Total grains	3,843	41.5	–
Forage crops:			
Hay	3,397	36.7	–
Pasture	543	5.9	–
Green feed	238	2.6	–
Roots for feed	156	1.7	–
Total forage crops[1]	4,342	46.9	–
Other crops:			
Potatoes	336	3.6	–
Sugar beets	126	1.4	–
Peas, beans	45	0.5	–
Tobacco	(2)	–	–
Other	31	0.3	–
Total other crops	538	5.8	–
Fallow	534	5.8	–
Total cropland	9,257	100.0	9.1
PERMANENT MEADOW			
Hay[3]	1,043	–	–
Pasture[3]	1,653	–	–
Total permanent meadow	2,696	–	2.7
Total agricultural[4]	11,953	–	11.8
FORESTS[3, 5]	54,750	–	54.0
OTHER LAND[3, 6]	34,667	–	34.2
Total land area[7]	101,370	–	100.0

[1] Including 8,000 acres of vetch.
[2] 596 acres in 1938.
[3] Estimated.
[4] Exclusive of gardens and orchards.
[5] Of which about 1,815,000 acres were pastured in 1938.
[6] Including about 79,000 acres in gardens and orchards in 1938.
[7] In addition to 9,566,000 acres of lakes and rivers. The total area of the country is therefore 110,936,000 acres.

Compiled from official sources.

NATURAL RESOURCES

Sweden's greatest natural resources are her forests, iron ore deposits, and water power. Of these she has excellent supplies, ample for domestic requirements and for export. Coal deposits, primarily in southern Sweden, are small, and at present supply only about one-fifteenth to one-twentieth of the country's total coal requirements. This great deficiency is partly offset by the extensive use of hydroelectric power and extension transmission lines, which supply electricity for railways, factories, mines, and homes. Electric current is now available to about 78 percent of the entire population: towns and villages are almost 100 percent electrified and rural districts 65 percent.[2] Through a submarine cable electricity is exported to eastern Denmark.

A range of mountains about 60 miles wide extends north and south along the frontier between Norway and Sweden. From these mountains the land slopes east in a series of forest-clad ridges (called the Highlands of Upper Sweden), interspersed with lakes and rivers extending to the narrow, flat, but fertile eastern coastal belt along the Gulf of Bothnia. The south-central section between Oslo, Norway, and Stockholm is relatively low, with numerous lakes and good agricultural land. This part of the country is not all suitable for farming, but consists of three large regions of clay soil around Lakes Mälar and Hjelmar, Lake Vänern, and east of Lake Vättern. These clay regions are separated by sparsely cultivated, higher, and stonier forest regions. South of these lakes is relatively higher land, predominantly in forests, consisting of moraine deposits. The extreme southern part in Skåne, just east of Copenhagen, consists of a chalk formation, where intensive agriculture is practiced. The basic rock formations of most of Sweden are gneiss and granites, but many gravelly ridges and moraines were deposited during the glacial periods.

Sweden's iron ore deposits, among the largest and richest in Europe, are located in northern and in south-central Sweden. The former is the largest deposit, including the famous iron mountains of Gällivare and Kiruna, export outlets of which were important factors in the recent German-Norwegian conflict. Ore from these mines is exported primarily across Norway to Narvik, but during the summer when the Gulf is free of ice some is also shipped to Lulea on the Gulf of Bothnia. The older southern ore fields do not produce so rich an ore, but are located nearer to Sweden's iron works and consequently supply most of the domestic requirements. Altogether, more ore is exported than is used in Sweden. In 1938 exports of iron ore amounted to 14 million tons, with a value equivalent to about 61 million dollars, or 13 percent of the country's total exports. In addition, about 80 million dollars' worth of iron and steel were exported.

FORESTS

More than half of Sweden's total land area is covered with forests (see table 1), termed Sweden's "green gold," the most extensive of which are found in the

[2] Nanneson, L. Osvald, Hugo, Berglund, N., and Johansson Ivar, *Science and Cooperation in Swedish Agriculture*, The Royal Swedish Commission 1939

central two-thirds of the country. In the extreme north and west, bare rock and bogs cover large areas, while in the south much of the land is under cultivation. Only the southernmost province has less than 40 percent of the land in forests. Even in provinces near Stockholm, where both industry and agriculture are well developed, forests occupy from 50 to 60 percent of the area. Most of the forests are on "absolute forest land"; that is, land consisting largely of stony moraines that cannot be cultivated. About 42 percent of the timber is spruce, 40 percent red pine, 13 percent birch, and 5 percent other wood such as oak, ash, beech, and elm.

Figure 2.-Timber being transported by river. (Courtesy Swedish Travel Information Bureau, New York City.)

Sweden is an important producer of wood and wood products. Her forest area equals that of Finland, but the growth in Sweden is slightly more intensive, with a greater production. The importance of forestry in Sweden's economy is indicated by the fact that forest products accounted for about 42 percent of Sweden's total exports in 1937 and 36 percent in 1938. In 1937 exports of forest products amounted to about 215 million dollars (166 million in 1938), about 30 percent of which consisted of lumber and about 70 percent of pulp and paper.

More than half the wood is used in the manufacture of pulp and paper, in addition to smaller quantities used for plywood, matches, charcoal, etc. The percentage used for various purposes in 1931 (exclusive of bark and waste) is as follows:

	Percent
Direct domestic consumption	31.3
Pulp	32.1
Mills	25.7
Charcoal for iron works	4.4
Plywood, matches, props, and fuel for industry	6.5
Total	100.0

In the northern coniferous forest region most of the timber is exported and used in the wood-products industries, whereas in the southern, more densely populated regions a greater part is used for domestic consumption. Logging is facilitated in the north by the long period during which snow covers the ground, providing ready transportation to streams for floating timber to the coast during the summer.

Figure 3.-Paper mills in the province of Värmland, central Sweden. (Courtesy Swedish Travel Information Bureau, New York City.)

Sweden's forests are being maintained in production so that annual growth is equal to cuttings. The first general forest law, enacted in 1905, stipulated that any timber cut must be replaced by new growths within a reasonable time. In 1929 a complete census of forests was completed.[3] Legislation restricting forest cuttings in some parts of Sweden dates back more than three centuries. Forestry commissions are set up to administer legislation and to improve forest production. About one-fourth of Sweden's forests are publicly owned, principally by the State, and about three-fourths are privately owned, chiefly by farmers and forest companies.

Farmers own about 35 percent of Sweden's forests, with an average acreage of between 50 and 75 acres of forest per farm. Some of these farm forests are used for pasture, and in addition constitute an important source of farm income from the sale of timber and cutting rights.

[3] The census was made by counting the trees in parallel belts across the entire country. These belts were about 40 feet wide and were spaced from 0.6 mile to 12.5 miles apart, depending on the density of the forests. The entire cost of the census amounted to only about 0.6 cent per acre of the country's forest land.

AGRICULTURAL PRODUCTION

Nearly all agricultural production is in the southern third of the country and in a narrow strip along the eastern coast. Only 9.1 percent of Sweden's total land area is cultivated. In addition, about 2.7 percent consists of permanent meadow for pasture and hay. The total land in agricultural production is therefore only 11.8 percent of the country's area. This is in sharp contrast to the more intensive land use in Denmark, where 75 percent is used for agricultural production.

About one-third of the country's total area is nonproductive; that is, it is not used for agriculture or for forestry. Such "other land" consists primarily of mountains, covering between 50 and 60 percent of the northwestern part of the country, and of moors, bogs, cut-over land, sand dunes, and bare rocks in other sections.

Types of farming in Sweden vary widely between the southern and northern sections of the country. The most intensive agriculture is found in the extreme south (Skåne), where nearly three-fourths of the land is in crops - principally grain, sugar beets, and root crops - and about half the farm income is derived from the sale of crops. On the other hand, in the northernmost part of the country, with nearly one-fourth of the total area, less than 1 percent of the land is in crops, limited largely to hay, barley, and potatoes; and farm sales consist almost entirely of livestock products.

SWEDISH AGRICULTURAL ECONOMY

Farm income. Farm income is derived chiefly from the sale of livestock and its products. For the country as a whole only about one-fourth of the farm sales are of crops - principally, in the order of their importance, wheat, sugar beets, potatoes, rye, and oats (see figure 4). Milk is the most important single item accounting for over 40 percent of the total. Sales of cattle and hogs make up between 10 and 15 percent each, and of eggs about 4 to 5 percent.

Farm ownership and size. Sweden is a country of relatively small, owner-operated farms. Over 80 percent are operated by owners and less than 20 percent by tenants. There are about 400,000 farms of more than 2 acres of cultivated land.[4] The average acreage per farm consists of about 23 acres of cropland, 7 acres of permanent meadow, and from 50 to 75 acres of woods. Only about 10 percent of the total cultivated area consists of large farms having more than 250 acres of cultivated land.

In recent decades many large estates have been broken up into smaller owner-operated farms through the assistance of government loans to competent farm laborers and renters. It has been found, however, that too small an acreage is not economical, and that, in general, in order to provide employment and a decent income, the family farm in Sweden should have at least 35 to 50 acres of tillable land, in addition to

[4] Actually the number of farms in Sweden in 1932 was 428 617 including all those having more than 0 6 acre of cultivated land

forest land, if located in central or northern Sweden.[5] The average price of cropland in 1938 was equivalent to about $100 per acre, varying from less than $50 to about $200.

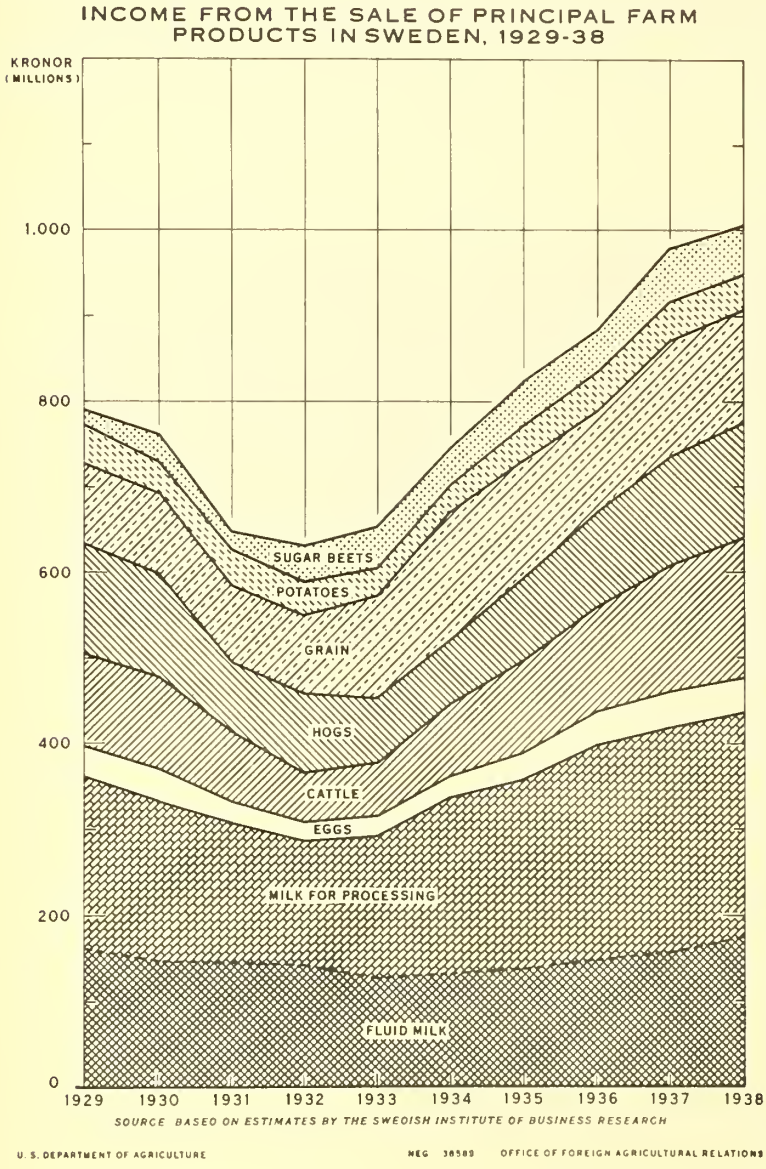

Figure 4.-Swedish farm income, 1929 to 1938.

Farm practices: The total area of cultivated land in Sweden is still being increased through clearing new ground, but this is proceeding slowly, due to the fact that most of the suitable land is already in use. Only about 7,700 acres of cultivated land, or an increase of about 0.1 percent, have been added annually during recent years.

The greatest emphasis has been on improving the land already under cultivation, particularly through drainage. About one-fourth of the cropland is now artificially drained; in some sections the proportion is as high as 70 percent. About 70,000 acres (0.8 percent) of cropland have been drained annually by state aid, approximately half of which is in the form of loans and the remainder in free grants. Much of the remaining cropland could be improved through extension of artificial drainage.

Electric power is extensively used on farms - on well over half of the country's total cultivated area. With improved distribution, the cost of electric current has been reduced, and in 1938 was equivalent to 2 cents per kilowat hour, plus certain fixed charges.[6] On farms,

[5] Nanneson, L., et al., *op. cit.*
[6] *Ibid.*

electricity is used principally for lighting, household appliances, and motors for pumps, saws, hoists, feed grinders, threshers, and to a smaller extent for heating.

Modern farm machinery is used extensively and resembles that used in the eastern United States. The use of tractors, though increasing, is not common, there being only 15,000 on Swedish farms in 1938.

As in most other western European countries, great care is exercised to preserve the fertilizer value of farm manure. About one-fourth of all the farms with cattle have special manure pits (mostly concrete), and about one-tenth have urine tanks from which the liquid manure is hauled onto the land.

Hired labor is not used extensively except on the larger farms. Well-equipped small farms rely almost entirely on family labor. According to the 1930 census only 27 percent of all the men working on farms and 13 percent of the women were hired labor. The wage rate for men, as stipulated by collective agreement between employer and employee organizations, was equivalent to about 16.5 cents per hour in 1938. Legislation in 1936 and 1937 reduced to 8 hours per day the working hours for hired labor on farms where at least 3 men are employed. During the summer this may be extended to 54 hours per week, while in winter it is reduced to 41 or 46 hours.

Cooperation, education, and research: The high degree of efficiency of Swedish farmers is largely due to the well-developed and widespread system of agricultural education, research, and cooperation. As in other Scandinavian countries, cooperative enterprises have developed extensively in all phases of agricultural life. Local organizations, usually set up with comparable bylaws, are combined into district federations, which in turn combine to form a national organization for each type of cooperative. In 1935 cooperative organizations handled 90 percent of the country s total milk delivered to creameries, 62 percent of the livestock sales, 27 percent of the eggs, and 30 percent of the grain. The following tabulation shows the number of various kinds of agricultural cooperatives and their membership in 1937, in addition to cooperatives for bookkeeping and various other purposes.

	COOPERATIVES *Numbers*	MEMBERSHIP *Numbers*
Buying and selling	786	[1] 100 000
Dairies and creameries	730	137 589
Cow testing	423	21 931
Slaughter houses	29	[2] 170 585
Farm credit	[2] 767	93 000
Livestock breeding:		
Horses	323	[1] 15 000
Cattle	2 355	44 219
Hogs	1 235	22 828
Sheep	190	1 411
Poultry	25	9 946

[1] Estimated.
[2] For 1935

The Royal Academy of Agriculture, founded in 1811, has carried on experimental work along numerous lines. Two agricultural institutes, chiefly for education but

also for research, were founded in 1848 and 1862. In 1932 most of this work was transferred to the Agricultural College at Uppsala, which has 15 departments for education and research. Instruction for future farmers is given primarily in the lower agricultural schools, such as the 41 farm schools, with courses lasting from 5 to 9 months, the 12 agricultural schools, offering 1- or 2-year courses with instruction in winter and practical work in summer, and the schools of home economics, offering 3- to 5-month courses. In 1937 there were 1,554, 352, and 1,215 students, respectively, in these three types of schools.

All counties in Sweden employ county agricultural advisers for the purpose of assisting farmers. Each county usually has one or more advisers for agronomy, one for livestock, one for horticulture, and one woman adviser for home economics. These advisers are paid chiefly by the state, as are the teachers in the farm schools.

CROP PRODUCTION

Sweden's crop production in recent years has been nearly sufficient for domestic requirements. Chief deficiencies are in such exotic crops as oilseeds, cotton, and citrus fruits. A century ago the cropland in Sweden was used almost exclusively for grain; spring grains occupied about 40 percent and winter grains and fallow each about 25 percent. Hay and pasture were primarily from permanent meadow.

Figure 5.-Harvesting hay, a leading crop in all northern countries.
(Courtesy Swedish Travel Information Bureau, New York City.)

During the past century the greatest change in utilization has been the increased use of cropland for feed production and the introduction of crop rotation. The total acreage of cropland has been greatly increased, but the proportion in grain decreased from about 65 to 41 percent in 1939, fallow acreage from 25 to less than 6 percent, and acreage in other crops increased from 10 to 53 percent of the total.

Of Sweden's 9.26 million acres of cropland, in 1939 about 41 percent was in grain, 47 percent in forage crops, 6 percent in special crops such as potatoes, sugar beets, beans, and peas, and 6 percent in fallow (see table 1). In the southern and central parts of the country a common rotation is that of winter grain (wheat or rye) followed by 2 years of clover and 2 years of a spring grain (barley or oats), and possibly a sixth year as fallow. Root crops are commonly grown after the first year of spring grain.

Another indication of the relative importance of the various crops may be obtained by converting each to comparable "feed units" on the basis of nutritive value. The average 1931-1935 production in terms of ton feed units is as follows:[7]

	TON FEED UNITS	
	Thousands	*Percent*
Grain	3 070	32
Straw, etc.	1 080	11
Hay	2 170	22
Potatoes and other roots	1 283	13
Pasture and green feed	1 254	13
Total	8 857	91
Permanent pasture	900	9
Total	9 757	100

One of the most outstanding features of Swedish agriculture has been the large increase in crop yields. Crop production increased from 5,450 thousand ton feed units annually in 1871-1875 to 8,540 in 1911-1915 and to 10,450 in 1936-1938. The 1938 crop of 11,030 was the largest ever produced in Sweden. Since the World War crop production has been greatly increased through higher yields and shifts to higher-producing kinds of crops, and through a slight increase in the total area under cultivation. Although the total grain acreage in 1937-1939 was about 6 percent smaller than in 1909-1913, total production was nearly 23 percent greater. Similarly, in the case of potatoes, an acreage 11 percent smaller produced a 20-percent greater harvest because of increased yields.

The most important reason for the increased production has been a 20- to 30-percent increase in yield per acre of most crops (see table 2). In yields Sweden ranks fourth among all agricultural countries of the world, surpassed only by Belgium, the Netherlands, and Denmark. Wheat yields per acre in Sweden are nearly 3 times those of the United States, and yields of barley and oats are nearly double those of this country. This increase has been accomplished partly through the use of improved varieties, partly through increased use of commercial fertilizers, and also through

[7] According to the *Agricultural Atlas of Sweden*, 1938 each ton feed unit is equivalent to the following number of tons of the various crops: wheat, rye, barley, peas, beans or vetches, 1.0; oats, 1.2; mixed grain, 1.1; hay, 2.5; straw, 3.5 to 5.0; potatoes or sugar beets, 4.0; feed roots, 10.0; beet tops, 12.0 to 15.0

such other factors as improved drainage, better tillage, better care of manure, and increased use of legumes. In 1933 sufficient commercial fertilizer was used to cover every acre of Swedish cropland with an application of 85 pounds per acre.[8]

TABLE 2. *Acreage, production, and yield of principal crops in Sweden, average 1909-1913*[1] *and 1937-1939*

CROP	ACREAGE		YIELD PER ACRE		PRODUCTION	
	1909-1913	1937-1939	1909-1913	1937-1939	1909-1913	1937-1939
	1,000 acres	*1,000 acres*	*Bushels*	*Bushels*	*1,000 bushels*	*1,000 bushels*
Grains:						
Wheat	255	774	31.8	37.5	8,103	29,069
Rye	977	496	24.7	31.6	24,100	15,692
Barley	448	269	33.6	41.2	15,035	11,075
Oats	1,961	1,644	43.9	54.9	86,050	90,274
Mixed	404	629	[2] 36.3	[2] 44.2	[2] 14,660	[2] 27,778
					1,000 tons	*1,000 tons*
Total	4,045	3,812	*Tons* 0.74	*Tons* 0.97	3,008	3,688
Forage crops:						
Roots for feed	161	162	15.16	17.05	2,445	2,758
Hay[3]	2,937	3,390	1.53	1.70	4,515	5,741
Green feed	74	239	-	-	-	-
Other crops:						
Beans, peas, vetch	81	64	0.71	0.69	57	44
Sugar beets	78	129	13.07	15.75	1,020	2,034
Potatoes	377	337	4.59	6.12	1,727	2,060

[1] For forage and "other" crops a 10 year average 1906-1915 is used instead of 1909-1913.

[2] In terms of bushels of barley

[3] Includes only hay from cropland. Approximately 10 percent additional hay is harvested from permanent meadow

Compiled from official data.

Even before the World War the use of phosphate fertilizer was relatively common, but nitrogen was little used. Since then the development of improved grain varieties with stronger straw has made it possible to apply increased quantities of nitrogen without the danger of lodging. The average quantity of each fertilizer element applied per crop acre in 1913 and in 1936 was as follows:[9]

	1913 *Pounds*	1936 *Pounds*
Nitrogen	1.3	5.8
Phosphates	8.6	13.3
Potash	4.5	9.1
Total	14.4	28.2

[8] The quantity of commercial fertilizer used in 1933 was about 204,000 tons of nitrogenous fertilizers, 450,000 tons of phosphates, and 131,000 tons of potash fertilizers (chiefly 40 percent). Of this 172,000 tons of the nitrogenous fertilizers and all the potash and raw materials for the phosphates were imported

[9] Nanneson, L., et al. *op. cit.*

It will be noted that the total application has been nearly doubled, but that of nitrogen has been increased more than fourfold. From numerous experiments it appears that under farm conditions each pound of nitrogen probably results in an average increase of 17.5 pounds of feed per acre, each pound of phosphates in 5 pounds of feed, and each pound of potash in 3.5 pounds. On this basis it is estimated that fertilizers alone increased the country's crop production by about 9 to 10 percent.

Bread grains: Nearly three-fourths of Sweden's bread grain now consists of wheat and about one-fourth of rye. With the shift in taste to white bread and the development of better-yielding varieties, wheat has steadily gained in importance, replacing rye. Wheat production in 1939 was nearly four times that of the period prior to the World War, when wheat accounted for only about one-fourth of the bread-grain production. Most of the wheat is of the soft, red, winter varieties, not well adapted to milling requirements because of its relatively low gluten and high moisture content. Increasing quantities of spring wheat of a harder texture and higher protein content are now being grown, since this type is better suited for milling requirements and replaces imported wheat. Spring wheat acreage has increased from about 17,000 acres, or 5 percent of the total wheat acreage, before the World War to about 180,000 acres, or 23 percent of the wheat acreage, during recent years. Greater attention has been devoted to improving yields of spring wheat, and with its gradual extension to areas of better soil yields have been increased by about 35 percent since the World War. Nevertheless, this shift has resulted in a smaller total wheat production than might have been obtained with winter wheat, which still yields about 42 percent more per acre. The average yields of winter wheat were 27.1 bushels and of spring wheat 19.1 bushels per acre in 1937-1939. About 20 percent of the production of bread grains is reported to be unsuitable for milling.[10]

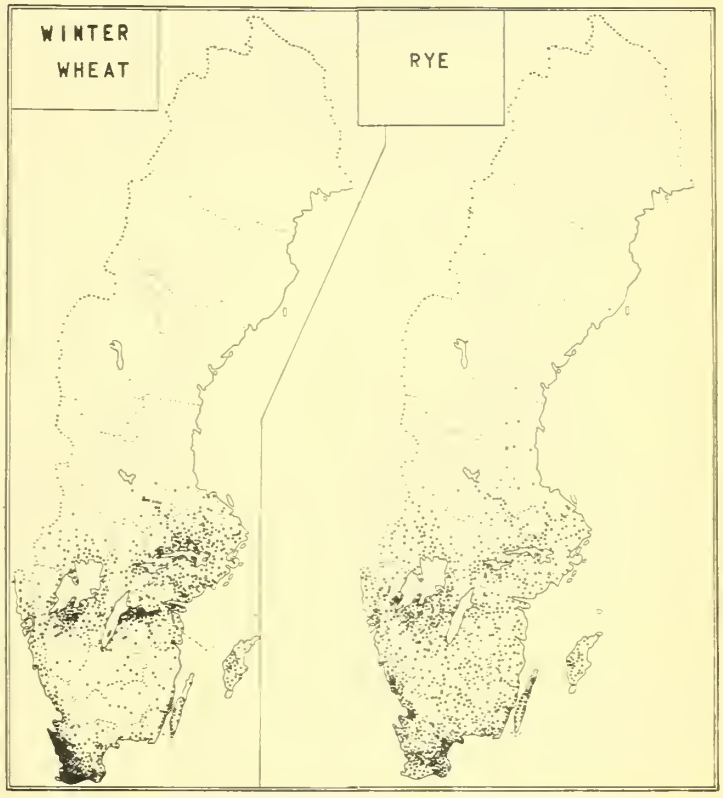

Figure 6.-Acreage under winter wheat and rye. Each dot equals 500 acres.

[10] Shollenberger, J. H., "Bread grain consumption and trade in Scandinavian countries," F.S.-60, U. S. Department of Agriculture, Dec. 1933.

Sweden is now practically self-sufficient in the production of bread grains. Although the total acreage of wheat and rye is now nearly the same as in 1909-1913, the combined production has been increased by 43 percent. In 1909-1913 more than one-fourth of the bread-grain requirements (half the wheat and 18 percent of the rye) was imported. With the greatly increased production of wheat the quantities exported from 1934 to 1936 were slightly in excess of imports. Consequently the domestic crop now fully satisfies requirements, except for the fact that nearly 2 million bushels, equivalent to 5 or 10 percent of domestic production, have been exported and a similar quantity of harder wheat has been imported from Canada, the United States, and Argentina to improve the quality of the flour. In years of poor harvest, of course, increased quantities would have to be imported. The recent average production of wheat and rye and the imports, expressed as flour in terms of grain, compared with 1909-1913, are as follows:

(IN 1,000 TONS)

	PRODUCTION		NET IMPORTS	
	1909-1913	*1937-1939*	*1909-1913*	*1936-1938*
Wheat	243	872	214	19
Rye	675	439	[1] 127	5
Total	918	1,311	[1] 341	24

[1] Estimated.

Government measures in the form of higher duties on imported wheat, fixed minimum prices for some crops, and a fixed minimum percentage of domestic grain, except in the production of flour for macaroni, have been partly responsible for the increased domestic production. Importers of flour are required to mix a specified percentage of Swedish with imported flour.

Feed grains. Sweden's feed-grain production consists of oats, barley, and mixed grain, of which oats is by far the most important (see table 2). Since the World War the total acreage of these crops, especially of barley and oats, has been reduced by about 10 percent, but the acreage of mixed grain has been increased. Yet in spite of the smaller acreage the average production of feed grain in 1937-1939 was 12 percent greater than in 1909-1913 as a result of higher yields per acre.

Two kinds of *barley* are grown. A 2-row variety requiring fertile soil and a warm climate is grown, especially in the extreme south, and is used largely for brewing. Six-row barley, with far less exacting requirements of soil and climate, is grown on poorer soil and extends to the extreme northern part of the country. About 60 percent of the total barley production is used for feed, about 20 percent for brewing, and about 20 percent for human consumption, partly as grits and partly, in the extreme north,[11] for bread.

Oats are grown most extensively in the south-central part of the country, on somewhat poorer soils than are required for 2-row barley, and generally yield less feed per acre than barley. About 97 percent of the crop is used for feed and only about 3 percent for food.[12]

[11] *Agricultural Atlas of Sweden*, 1938

[12] *Ibid.*

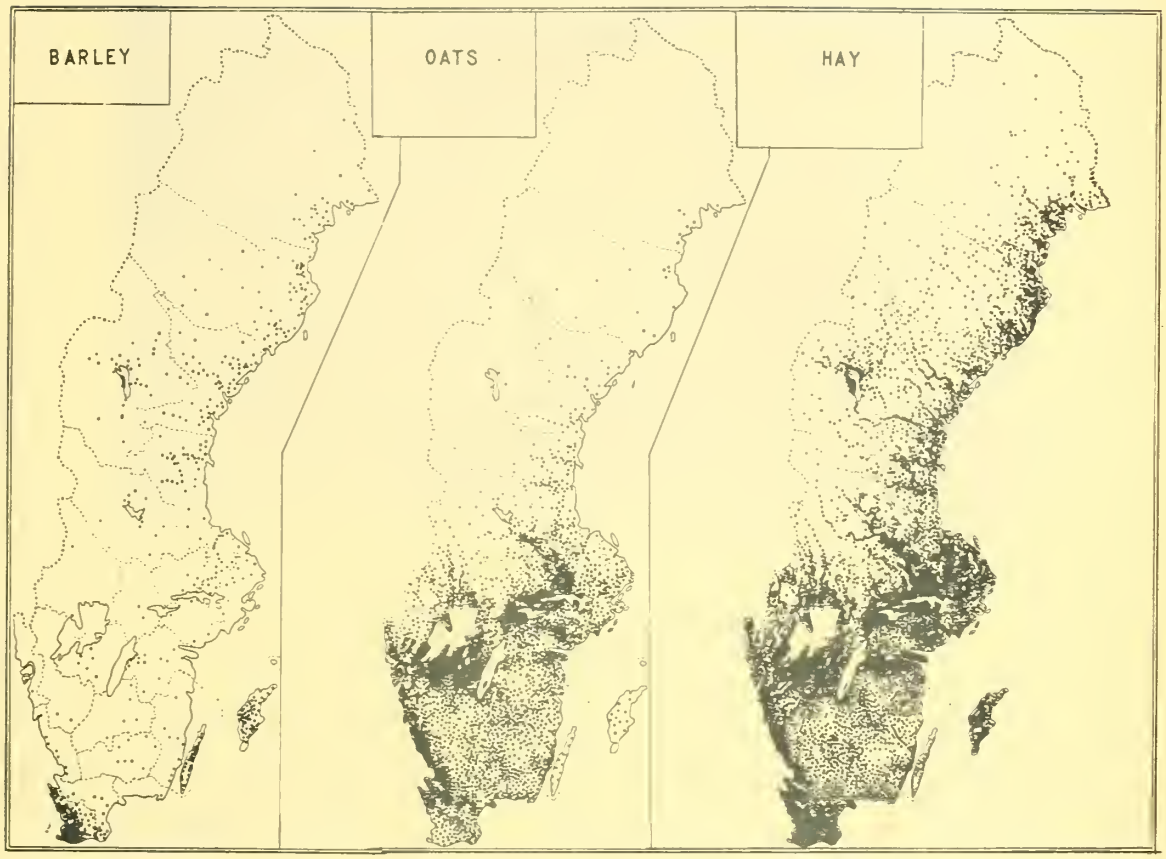

Figure 7.-Acreage under barley, oats, and hay. Each dot equals 500 acres.

Mixed grain, consisting of oats, barley, and legumes, is grown extensively for feed, especially in the fertile soil of the extreme south and in the east-central section of the country. Its production accounts for more than one-fourth of the total feed grain and is 2.5 times that of barley. On comparable soil the feed yield of mixed grain is greater than that of oats alone and only slightly less than that of barley alone. It is also claimed that mixed grain is less affected by unfavorable weather conditions.

Recent annual production and imports of feed grain as compared with the pre-World War level are as follows:

(In 1,000 tons)

	Production		*Net imports*	
	1909-1913	*1937-1939*	*1909-1913*	*1936-1938*
Oats	1,377	1,444	36[1]	23
Barley	361	266	-21,[2]	1
Mixed grain	352	677	0	0
Corn	0	0	41	196
Total	2,090	2,377	75	220

[1] 1911-1913 only.

[2] Net export.

Figure 8.-Hauling grain in Sweden. (Courtesy Swedish Travel Information Bureau, New York City.)

Domestic production of feed grain during recent years has supplied between 90 and 92 percent of the country's total requirements. The principal import was corn, about three-fourths from Argentina and the remainder largely from the United States and the Danube Basin. The degree of the country's self-sufficiency in feed grains has not changed materially since the World War. Domestic production has increased, but so also have livestock numbers and feed requirements.

Forage crops: Nearly half of all the cropland is devoted to forage crops, of which hay is by far the most important. About 90 percent of the hay is grown on cropland, but about 10 percent of the total hay harvest is cut from the permanent meadows. The proportion of cropland devoted to hay and pasture increases rapidly as one goes north. In the extreme south only 22 percent of the cropland is devoted to hay, in the lake district about 41 percent, and in the mountainous regions of the north 75 percent. In addition, in 1939 about 238,000 acres (less than one-tenth the acreage in hay) were devoted to green feed, largely grain and legumes fed before maturity. A further 156,000 acres of root crops, such as mangels, swedes, turnips, and carrots are also used for feed, in addition to about half of the total production of potatoes.

Potatoes occupy an important place in Swedish agriculture, supplying the country's requirements for food as well as for feed, and in manufacturing. The total acreage is nearly half as large as that planted to wheat. Potatoes are grown in all parts of the country, particularly on sandy soils, which usually are not the most fertile. Particularly noteworthy is the fact that the yields per acre, unlike those of most other crops, are highest in the north. The northernmost province of Norrbottens, the greater part of which lies north of the Arctic Circle, has an average yield of 263 bushels per acre, whereas for the fertile soil of Malmöhus in the

extreme south, yields average only 189 bushels. Yields for the country as a whole have increased by about one-third since the World War, from 153 bushels per acre to 205 bushels in 1937-1939. Small farms usually have the greatest proportion of their land in potatoes in regions where production is for food and feed, but larger farms participate in production for manufacturing. About 50 percent of the total production is estimated to be used for feed, 40 percent for food, 5 percent for starch manufacture, and 4 percent for distilling in the manufacture of brandy ("snaps").[13]

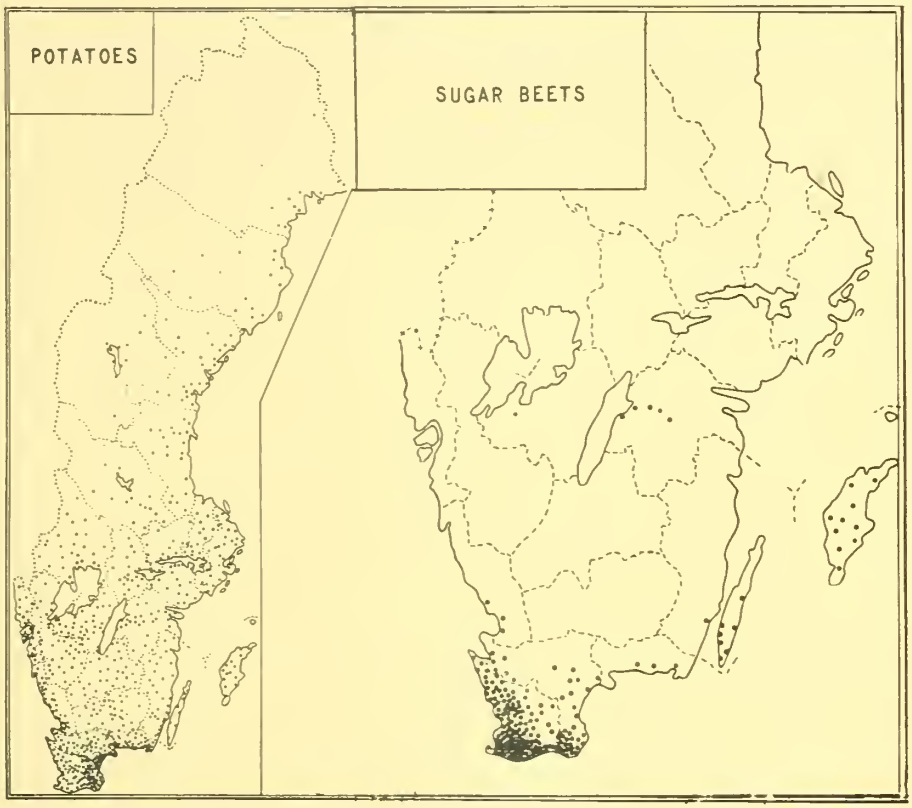

Figure 9.-Acreage under potatoes and sugar beets. Each dot equals 500 acres.

Sugar beet production is limited almost entirely to the fertile plains in the extreme southern part of Sweden. Production has been doubled since 1909-1913. Even until 1930 production was sufficient to supply little more than half the country's sugar requirements, but during recent years it increased to a level of about 650,000 tons of sugar, sufficient for about 97 percent of the country's requirements. In 1930 the industry was subsidized, and in 1932 a sugar import monopoly was established under which certain refineries were given exclusive rights to import sugar provided they maintained a fixed price for domestic sugar beets.

Tobacco: Tobacco has long been grown in Sweden, but the climate and soil are not well adapted to its cultivation, and the leaf is generally of a low-quality,

[13] *Agricultural Atlas of Sweden*, 1938.

air-cured type suitable for use only in the manufacture of snuff. Production is under the direct supervision of the tobacco monopoly and has been limited to about 1.4 million pounds annually. Domestic production supplies only about 8 percent of the total leaf requirements. Leaf imports amount to about 16 million pounds a year, about 60 percent of which (largely flue-cured and fire-cured) is obtained from the United States. The remainder is chiefly oriental leaf from Greece and Turkey and cigar leaf from the Netherlands Indies, Brazil, and Cuba.

TABLE 3. *Proportion of Swedish cropland in specified crops by size of farms, 1932*

SIZE OF FARM (CROPLAND)	NUMBER OF FARMS	PERCENTAGE OF CROPLAND IN SPECIFIED CROPS							
		WHEAT AND RYE	BARLEY, OATS, AND MIXED GRAIN	TOTAL GRAIN AND LEGUMES	POTATOES	GREEN FEED AND ROOTS ETC	HAY AND PASTURE	FALLOW	TOTAL
ACRES PER FARM	*Thousands*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
0.6 2.4	60	3.5	18.9	22.6	13.6	6.0	55.8	2.0	100.0
2.5 4.9	61	5.6	23.2	29.0	8.5	5.9	54.5	2.1	100.0
5.0 12.3	117	8.4	26.3	34.9	6.0	5.2	50.7	3.2	100.0
12.4 24.7	96	10.4	28.0	38.7	4.5	5.3	46.3	5.2	100.0
24.8 49.5	60	13.0	28.8	42.2	3.4	6.1	40.8	7.5	100.0
49.6 74.1	17	14.9	28.7	44.3	2.7	6.9	37.5	8.6	100.0
74.2 123.5	11	16.2	27.8	45.0	2.3	7.1	36.3	9.3	100.0
123.6 247.1	5	16.9	26.6	44.6	2.0	6.0	37.6	9.8	100.0
247.2 over	2	18.4	24.5	44.0	2.0	6.8	38.5	8.7	100.0
Total and average	429	13.1	27.4	41.1	3.7	6.1	42.1	7.0	100.0

Based on data from *Statistisk Årsbok för Sverige*, Stockholm, 1938.

Fruit: No accurate data are available as to fruit production, but the 1932 census lists the number of trees counted at that time. Estimated production on the basis of the number of trees would be as follows:

	NUMBER OF TREES	PRODUCTION[1]
	Thousands	*Million pounds*
Apples	4,082	180
Pears	1,176	47
Cherries	1,049	21
Plums	921	12
Total	7,228	260

[1] The *Agricultural Atlas of Sweden* estimates the following average yields of fruit in pounds per tree: apples 44.1; pears 39 7, cherries 19.8; and plums 13 2

Assuming this production is correct, the average imports of 34 million pounds of fresh apples and 18 million pounds of pears in 1936-1938 would indicate that Swedish fruit supplies about 84 and 72 percent of domestic apple and pear requirements, respectively. In addition, however, about 134 million pounds of other fresh fruit (largely citrus) and about 31 million pounds of dried fruit were imported.

LIVESTOCK PRODUCTION

The importance of the livestock industry is indicated by the fact that more than three-fourths of the value of agricultural products sold from farms consists of livestock and its products. In 1938 milk accounted for more than half of the sales of livestock and livestock products, cattle accounted for more than one-fifth, hogs for about one-fifth, and eggs for about 5 percent. These products are also most important in Sweden's agricultural exports, although not of the same relative importance.

In the latter part of the nineteenth century Sweden's agriculture shifted from an emphasis on the production of grain to greater livestock production. Reasons for the shift were the increased competition of foreign grain and improved transportation from the newly developed areas in America, as well as the increased demand for livestock products as Europe became more industrialized. Cattle numbers were increased from less than 2 million in 1870 to 3 million in 1913-1914, while hog numbers were increased from less than 0.4 million to 1.0 million during the same period.

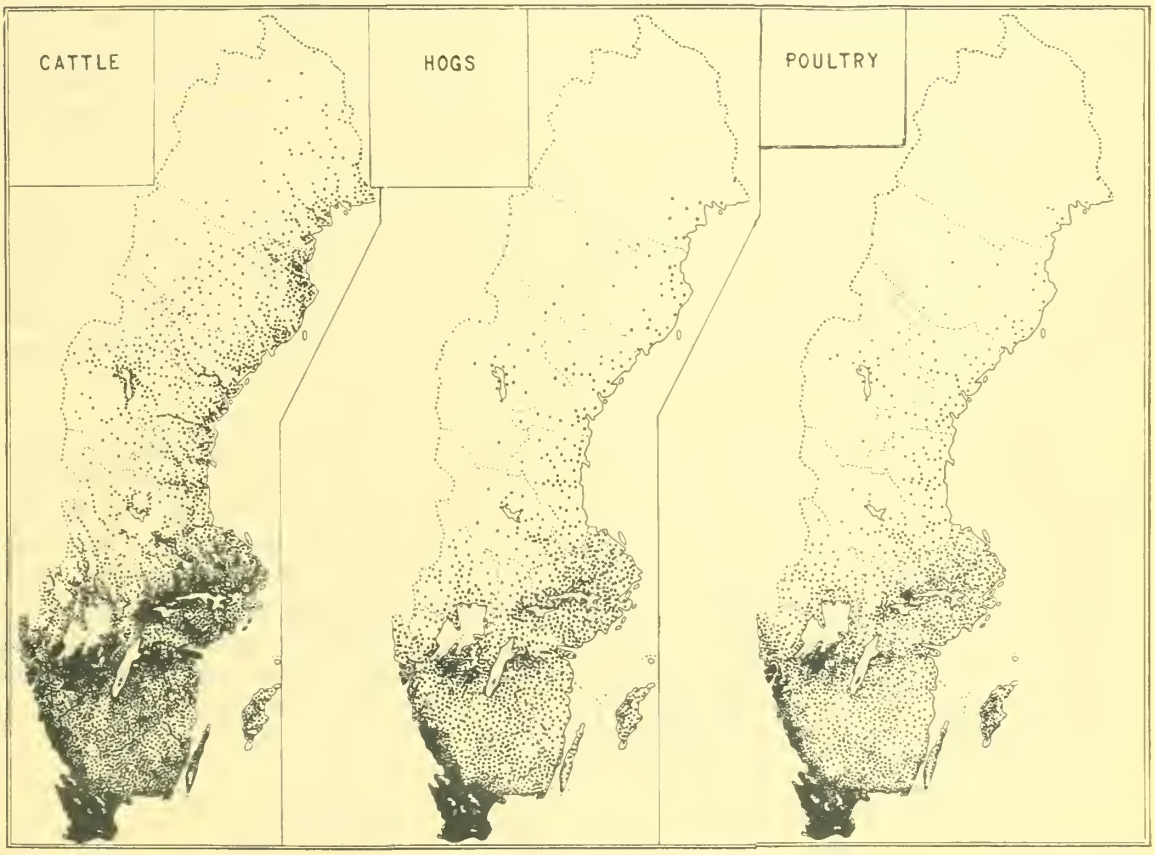

Figure 10.-Numbers of cattle, hogs, and poultry. Each dot equals 500 cattle and hogs; 3,000 fowls.

Since the World War there has been little change in the number of cattle, but hog numbers increased further by about 34 percent, and poultry nearly doubled. On the other hand, the number of sheep declined to about one-third of the pre-World-War level. The following tabulation shows the numbers of livestock on farms in 1938 as compared with 1913-1914 and 1870. Production, however, has been increased to a much greater extent than these data would indicate because of the higher production per animal.

	1870	1913-1914	1939
	Thousands	*Thousands*	*Thousands*
Horses	428	669	617
Cattle	1,966	3,069	2,975
Cows	-	(1,926)	(1,926)
Hogs	354	1,023	1,315
Sheep	1,595	1,205	373
Goats	124[1]	119	50[1]
Reindeer	320[1]	273	--
Poultry	-	7,000[1]	12,000[1]

[1] Estimated.

Dairying: Dairying is important throughout Sweden. It supplies the greatest share of the farm income, and dairy products are the most important agricultural exports. Production relies primarily on domestic supplies of forage crops and pasture, but is heavily dependent on imported supplies for high-protein concentrate feed such as oil meal and cake (see table 4). Note that in 1936-1938 an estimated 330,000 tons of oil meal and cake were used annually; slightly more than half was imported as oil cake, and nearly half was produced by domestic crushers from imported oilseeds and nuts. The most important oil feeds imported were peanut cake, largely from British India, cottonseed cake from South America, coconut cake from the Philippines, soybean cake from crushers in Denmark, and smaller quantities of sunflower, rape, and linseed. Of the imported seeds for crushing in Sweden, more than two-thirds were soybeans from China, about 15 percent was flaxseed from Argentina, and about 6 percent was copra (dried coconut meat) from Australia and the Netherlands Indies.

Sweden has four principal breeds of cattle, all dairy breeds. The Swedish Red and White, a medium-size breed, is by far the most important in the country as a whole, particularly in the central section. This breed was developed from the old Swedish Manor cattle and the imported Shorthorns and Ayrshires. Friesian cattle are most important in the extreme south. These large, heavy producers, originally from Holland, are well adapted to utilizing the byproducts of sugar beets, production of which is concentrated in southern Sweden. The other two breeds are the relatively small White Polled, or Mountain, cattle in northern Sweden and the Red Polled, found in a few districts in central Sweden. Average production of the several breeds in cow-testing associations in 1935 is as follows:

	PRODUCTION PER COW		
	MILK	BUTTERFAT	
	Pounds	*Percent*	*Pounds*
Friesian	9,616	3.45	331
Red and White	7,511	3.77	285
Red Polled	6,142	3.78	232
Mountain cattle	4,925	3.87	190
Average all cows (1937)	7,880	3.70	292

TABLE 4. *Swedish net imports of vegetable oils, oilseeds, and oil meal and cake, average 1936-1938*

ITEM	OILSEEDS AND NUTS	ESTIMATED EQUIVALENT IN	
		OIL	OIL MEAL AND CAKE
	1,000 tons	*1,000 tons*	*1,000 tons*
IMPORTS			
Oilseeds and nuts:			
Soybeans	146	21	125
Flaxseed	49	16	33
Copra	37	23	14
Peanuts	4	2	3
Other	5	3	3
Total	241	65	178
Vegetable oil and oil meal and cake		41	232
Total		106	410
EXPORTS			
Vegetable oil and oil meal and cake		17	80
Total net supplies		89	330

Most of the milk is delivered as fresh whole milk to dairies or creameries, (mostly cooperative), where it is made into butter and cheese; but the skim milk, buttermilk, and whey are returned to the farm for feed. It is variously estimated that more than one-third of the total milk production is used on the farms as food and feed and for making farm butter.[14] Of that delivered to commercial dairies, some is sold for direct consumption as fluid milk and cream, but by far the greater part (over 80 percent), is made into butter, cheese, etc. The quantities of milk used for various purposes in 1938 have been estimated as follows:

	Million pounds	
Used on farms and for farm butter		4 000
Delivered to creameries and dairies		
Sold as whole milk	900	
Used for cream	300	
Made into butter, cheese etc	5 350	
Total		6 550
Total production		10 550

Commercial creameries and dairies in 1938 produced the following quantities of manufactured products, in addition to some condensed and powdered milk:

	Million pounds
Cream	70
Butter	177
Cheese (whole milk)	67
Cheese (other)	13

[14] *Government Measures for the Relief of Agriculture in Sweden since 1930*, Svenska Handelsbanken s *Index*, March 1939, quoting Ytterborn, "Jordbruksproduktionens utveckling" (The development of agricultural production), *Svensk Tidskrift*, v 3, 1938

Although there has been no material change in the number of cattle in Sweden since before the World War, the volume of dairy production has increased greatly, due to improved practices in breeding and feeding. The total quantity of milk delivered to dairies in 1910 amounted to 2,530 million pounds, or less than half the approximately 6,550 million pounds delivered in 1938. Similarly, the production of butter in commercial dairies was more than doubled, increasing from 73 million pounds to 177 million, and the production of cheese was increased from 22 million pounds to 80 million.

Much of this increase has been due to a shift from the use of milk in making butter on farms to a much greater proportion now made in commercial dairies. It is estimated that before the World War only about half of the butter was made in commercial dairies, as compared with about 90 percent in 1938. However, records of cow-testing associations[15] indicate that the average milk production per cow was increased by 23 percent, from 6,410 pounds in 1913-1915 to 7,880 pounds in 1937.[16] Furthermore, the average butterfat content of milk was also increased from 3.42 to 3.70 percent, so that the total butterfat content was increased by nearly one-third, or from 220 pounds to 292 pounds per cow, during this period. This average milk production in cow-testing associations in Sweden in 1937 was almost exactly the same as that of cow-testing associations in the United States, but the butterfat production was about 10 percent greater (322 pounds) in this country.

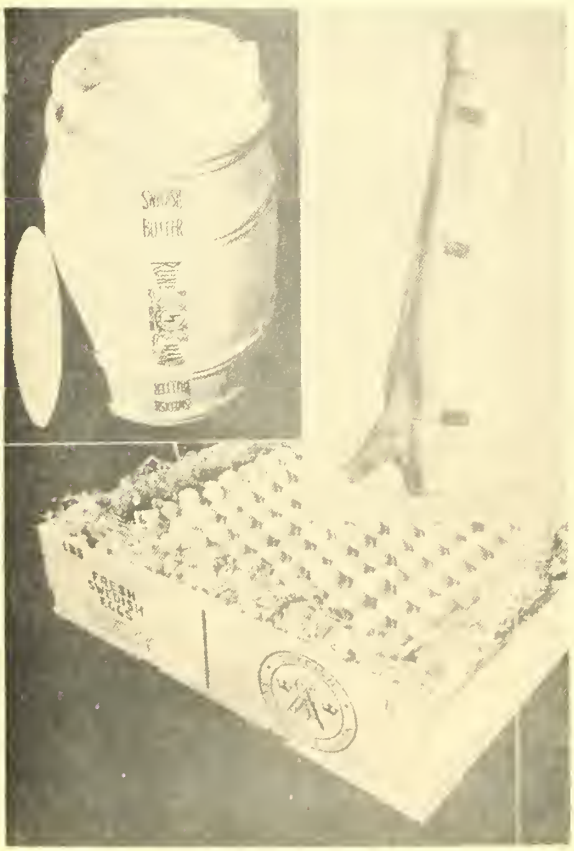

Figure 11.-Swedish livestock products for export.

About 31 percent of the total production of butter has been exported during recent years (see table 5). This represents about 15 percent of the country's total milk production. Exports during recent years have been almost entirely to the United Kingdom and Germany, each taking about half. Formerly the United Kingdom took a somewhat larger share than did Germany. Cheese is used almost entirely for the domestic market. Exports amount to only about 1 percent of the total production. In fact, imports of cheese are about three times as large as exports.

[15] Cow testing associations were started in Sweden more than 40 years ago. In 1938 there were about 1,000 such associations, covering about 18 percent of all dairy cattle.

[16] The average milk production for all cows in the country is estimated at about 5,000 pounds per cow.

TABLE 5.—*Estimated production, consumption, and foreign trade in Swedish livestock products, 1938*

PRODUCT	PRODUCTION	CONSUMPTION	EXPORTS	IMPORTS	PERCENTAGE OF PRODUCTION EXPORTED
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Percent*
Pork	[1] 310	280	[2] 35	5	[3] 11
Other meat ...	[4] 240	238	[5] 10	8	4
Butter	[6] 200	137	63	(7)	[8] 31
Cheese	[9] 80	82	1	3	1
Eggs	100	89	12	1	12

[1] Only about 183 million pounds of pork were slaughtered in commercial packing plants.

[2] Including exports of live hogs equivalent to about 5 million pounds of meat In addition, 2 million pounds of lard were exported

[3] Of the commercially slaughtered meat about 21 percent was exported

[4] Only about half of which was slaughtered in commercial packing plants

[5] About half of which was exported as live animals

[6] Only 177 million pounds of butter were produced in creameries

[7] Butter imports amounted to only about 2 000 pounds.

[8] About 35 percent of the butter produced in commercial dairies was exported

[9] Commercial production only.

Compiled from official sources

It should be pointed out that Sweden's consumption of margarine is about as large as that of butter and more than twice as large as the quantity of butter exported. Margarine consumption in 1939 amounted to 131 million pounds, compared with a butter consumption of about 140 million pounds and butter exports of about 63 million (1938). In other words, Sweden is able to export butter only because consumers use margarine extensively in its place. Consequently, if import supplies of oils and fats for the manufacture of margarine should be reduced by even as much as 50 percent as a result of the present war, Sweden would no longer have butter to export.

Hog production: Swedish hog production is primarily for the home market and supplies over half of the country's total meat production. Nevertheless, pork products rank second among Swedish agricultural exports (exclusive of hides and skins). About 11 percent of the total production and nearly one-fourth of the commercially slaughtered pork is exported. Exports consist of about 29 million pounds of cured pork - that is, Wiltshire sides - exported to the United Kingdom, 5 to 8 million pounds of live fat hogs exported to Germany, and about 2 million pounds of lard. Sweden's total pork exports, however, are less than 10 percent as large as those of Denmark.

Hog production is heaviest in the extreme southern part of Sweden and generally in the regions having the greatest barley, mixed grain, and dairy production. Feed consists principally of domestically-produced grain, skim milk, and potatoes,

in addition to imported corn amounting to from 10 to 20 percent of the total hog-feed requirements.[17]

Two breeds of hogs, both white and of the bacon type, are kept in Sweden; one the Swedish Landrace, domestically developed, and the other the Large White (Yorkshire). Extensive hog improvement work has been carried on with state aid through breeding associations, testing stations, herd books, and performance records.[18] About 80 percent of the commercial production is marketed through cooperative associations.

Until 1910 Sweden was on a net import basis for pork. During the World War feed shortage, production declined to a net import basis from 1917 to 1920. Production increased most rapidly from 1927 to 1931, when the peak was reached. Rising pork prices in 1928 and 1929, coupled with declining feed prices, encouraged increased production, which reached a level in 1931 of 1,614,000 hogs on farms on July 15 and record pork exports amounting to about 64.3 million pounds of cured pork and 3.5 million pounds of lard. However, with the adoption of Britain's quotas on imports of cured pork, Swedish exports of this product declined sharply to between 28 and 29 million pounds during each of the years 1935 to 1938, or to less than half the 1931 level. Pork prices dropped sharply, and in 1931 to 1934 were only about half those during 1925-1929. Hog numbers were not substantially reduced until 1935, and since then have remained at a level varying between 1,294,000 and 1,371,000 head, about 15 percent fewer than in 1931. Following this adjustment, prices increased to a level in 1938-1939 only 8 percent under that in 1925-1929.

Sheep: Sheep play a minor role in Swedish agriculture. Numbers have declined rapidly and steadily from 1,568,000 head in 1920 to only 373,000 in 1939. Since sheep represent an extensive type of livestock they are kept largely on the poorer pasture land, on moors, and in the wooded areas. Sheep are kept primarily for meat, the most important breeds being Cheviot, Swedish native, Shropshire and Oxford-downs. The total production of mutton and lamb in 1938 is estimated at between 9 and 10 million pounds, or only about 2 percent of the country's total meat production. About 1.4 million pounds of additional mutton and lamb are imported. Recent wool production is estimated at about 2 million pounds, whereas about 22 million pounds are imported. Domestic production, therefore, supplies less than 10 percent of the country's wool requirements.

Poultry: Eggs, although considerably less important than butter and bacon, are the third most important livestock export (excluding hides and skins), with an export value during recent years of between 1 and 2 million dollars annually. The number of hens in Sweden is estimated at about 8 million, with an annual production of 800 million eggs, or about 100 million pounds. Of these about 12 million pounds, or 12 percent, were exported in 1938. About 60 percent of the eggs exported have been to the United Kingdom and 40 percent to Germany.

[17] Reed, H. E. "The hog industry in Sweden," *Foreign Agriculture*, Apr. 1939.

[18] In one of the herd control or pig-testing associations in southern Sweden in 1935-1936 the following average results were obtained: 1.7 litters per sow per year, 10.3 pigs per litter at birth and 8.5 at 3 weeks. For hogs of from 44 to 200 pounds in weight the average daily gain was 1.48 pounds per pig and a consumption of 3.4 feed units per pound of gain.

TABLE 6.—*Imports and exports of Swedish agricultural products, average 1936-1938*

ITEM	QUANTITY			VALUE[1]	
	IMPORTS	EXPORTS	NET IMPORTS (-) OR EXPORTS (+)	IMPORTS	EXPORTS
	Million pounds	*Million pounds*	*Million pounds*	*1,000 dollars*	*1,000 dollars*
Live animals:					
Horses	-	-	-	552	54
Cattle	-	-		7	831
Hogs	-	6.4	+6.4	1	585
Other	3.3	8.9	+5.6	72	85
Total	3.3	15.3	+12.0	632	1,555
Meat:					
Pork	5.2	29.1	+23.9	610	5,511
Beef	2.9	0.9	-2.0	292	71
Mutton	1.4	-	-1.4	171	-
Horse	1.9	0.3	-1.6	175	25
Poultry	2.6	-	-2.6	378	9
Other	0.6	2.9	+2.3	99	363
Total	14.6	33.2	+18.6	1,725	5,979
Other livestock products:					
Butter	0.1	52.3	+52.2	25	11,519
Cheese	2.9	0.9	-2.0	479	132
Other dairy	0.8	0.1	-0.7	48	4
Eggs[2]	2.4	8.9	+6.5	312	1,368
Wool	22.4	1.1	-21.3	7,452	168
Hides, skins, and pelts	67.8	39.9	-27.9	14,915	10,465
Total	96.4	103.2	+6.8	23,231	23,656
Total livestock and products[3]	114.3	151.7	+37.4	25,588	31,190
Grain, feed, etc.:					
Grain[4]	554.4	162.9	-391.5	8,234	1,674
Flour and meal	93.0	13.4	-79.6	1,697	242
Bran	79.3	8.2	-71.1	1,112	85
Other grain feed	124.9	141.5	+16.6	1,947	2,236
Hay	4.7	28.5	+23.8	32	232
Oil meal and cake	464.2	161.2	-303.0	7,240	2,520
Oilseeds and nuts	482.2	0.1	-482.1	11,173	2
Potatoes	13.8	0.3	-13.5	118	4
Other	35.9	37.4	+1.5	4,275	581
Total	1,852.4	553.5	-1,298.9	35,828	7,576
Fats and oils:					
Vegetable	82.7	33.8	-48.9	5,081	2,142
Animal	57.6	20.8	-36.8	3,011	984
Manufactured	2.8	0.3	-2.5	296	16
Total	143.1	54.9	-88.2	8,388	3,142
Fruits and nuts:					
Fruits, fresh	183.2	6.6	-176.6	9,573	190
Fruits, dried	30.0	0.2	-29.8	2,169	15
Nuts	22.4	0.1	-22.3	3,047	13
Total	235.6	6.9	-228.7	14,789	218
Cotton, raw	75.6	0.1	-75.5	9,861	18
Tobacco, raw	15.4	0.1	-15.3	5,260	3
Commercial fertilizer	592.2	30.7	-561.5	7,711	198
Total agricultural	-	-	-	107,425	42,345
Total nonagricultural	-	-	-	387,582	411,972
Total trade	-	-	-	495,007	454,317

[1] The average value of a Swedish krona in 1936-1938 was 25.437 cents.
[2] About one-third of the eggs imported consisted of products not in the shell.
[3] Excluding animal fats and oils.
[4] Including peas, beans, and vetch.
Compiled from official sources.

Poultry production is heaviest on small farms (see table 7), especially in the extreme southwestern part of the country and in the lake region. About two-thirds of the hens are Leghorns and about 20 percent are Rhode Island Reds.

TABLE 7.--*Livestock numbers in Sweden per 100 acres of cropland, by size of farms, 1932*

SIZE OF FARM (CROPLAND)	MILK COWS	HOGS	SHEEP	CHICKENS	TOTAL ANIMAL UNITS[1]
ACRES PER FARM	*Numbers*	*Numbers*	*Numbers*	*Numbers*	*Numbers*
0.6-2.4	52.5	29.4	9.2	446	72.4
2.5-4.9	41.2	18.7	8.6	207	59.4
5.0-12.3	32.0	16.5	9.3	130	54.6
12.4-24.7	24.9	16.4	7.6	94	46.7
24.8-49.5	19.6	16.9	5.1	73	39.6
49.6-74.1	16.2	16.1	3.5	56	35.0
74.2-123.5	14.5	14.4	2.6	42	31.8
123.6-247.1	13.3	11.4	1.6	28	28.1
247.2 and over	13.2	12.2	1.6	24	27.9
Average	20.8	15.5	5.1	76	40.0

[1] Includes horses and other cattle

Based on data from *Statistisk Årsbok för Sverige*, Stockholm, 1938

Fur animals.[19] During recent years fur farming has developed into an important supplementary enterprise, particularly in northern Sweden. In 1937 3,100 farms kept 132,000 silver foxes. In addition there were 26,000 blue foxes, 41,000 minks, and 8,000 nutria. It is estimated that the following numbers of pelts were produced in 1938: 108,000 silver fox, 28,000 blue fox, and 56,000 mink.

AGRICULTURAL RELIEF MEASURES[20]

The decline in world prices of agricultural products during the depression severely affected Swedish agriculture. Since Sweden imported about 40 percent of its wheat requirements during the late 1920's, cheaper supplies available from overseas forced down domestic prices of both wheat and rye. On the other hand, about 30 percent of Sweden's production of butter and about 15 percent of the pork were being exported in competition with cheaper supplies from other countries. The lower world prices and the declining export demand forced a rapid drop in prices. Farmers at first tried to offset the decline by increasing the volume of production in order to maintain the farm income. Under the threat of these chaotic conditions the Swedish Government intervened with various farm relief measures.

[19] Nanneson, L. et al *op. cit.*

[20] For further details regarding this subject see *Government Measures for the Relief of Agriculture in Sweden since 1930*, Svenska Handelsbanken's *Index*, March 1939.

Government relief measures instituted to relieve the agricultural depression were of several kinds, each adopted more or less independently as the particular emergency arose. Generally the farm program was characterized by its directness and simplicity of operation. Reliance was placed principally on cooperative organizations to carry out the program. Swedish farm relief measures may be grouped in three major classes: (1) export subsidies, principally for livestock products; (2) subsidy payments for domestic processors, particularly of dairy products; and (3) minimum prices, principally for bread grains and sugar beets. In addition, various other supplementary measures were employed, such as the restriction of imports through licenses and monopoly control and the imposition of milling and mixing quotas for imported grain and flour to increase consumption of domestic products. Funds for the operation of the program and payment of subsidies are obtained from import duties and processing taxes. Stabilization operations were also conducted by the government through purchase of grain stocks.

The following tabulation shows the various kinds of measures employed and the principal products affected, as well as the years in which they were instituted. Most of the measures have been in continuous operation since the dates shown, but some have been discontinued or replaced.

Bread grains		Dairy products:	
Minimum prices	1930	Export subsidy	1932
Milling quotas for imported grain	1930	Subsidy for domestic processing	1932
Mixing quotas for imported flour	1930	Tax on milk sold	1932
Special import duty	1930	Import restrictions	1933
Monopoly control of imports	1931	Tax on margarine	1933
Purchase of unsold surplus	1931	Meat	
Processing tax	1934	Subsidy for constructing cooperative slaughter houses	1933
Subsidy purchases	1936	Slaughter tax	1933
Export certificates	1937	Export subsidy	1934
Feeds		Eggs:	
Import duty, oil meal and cake	1933	Import duty	1933
Processing tax, oil meal and cake	1933	Import restrictions	1934
Import duty, feed grains	1934	Export subsidy	1934
Export subsidy, feed grains	1936		
Sugar beets			
Production subsidy	1929		
Import monopoly for sugar	1932		
Fixed prices for beets	1932		

CROP PRODUCTION MEASURES

Grain prices as a whole were the first to decline generally in 1929 (wheat in 1928); the prices of livestock products did not begin to decline until 1930, with the exception of earlier cyclic variations. By 1929 wheat and rye prices in Sweden had declined 17 and 15 percent, respectively, below the 1925-1929 average. At the same time the prices of all the principal livestock products in 1929 remained very close to the 1925-1929 level (see figure 12).

This relatively more favorable position of livestock products encouraged farmers to increase production of feed crops and livestock products, which later in turn further aggravated the livestock situation. Prices of domestic feed grains, barley and oats, reached their low point in 1933 at nearly 40 percent below the 1925-1929 level; and livestock products dropped between 40 and 50 percent. At the same time the prices of these products in the world markets dropped between 50 and 70 percent.

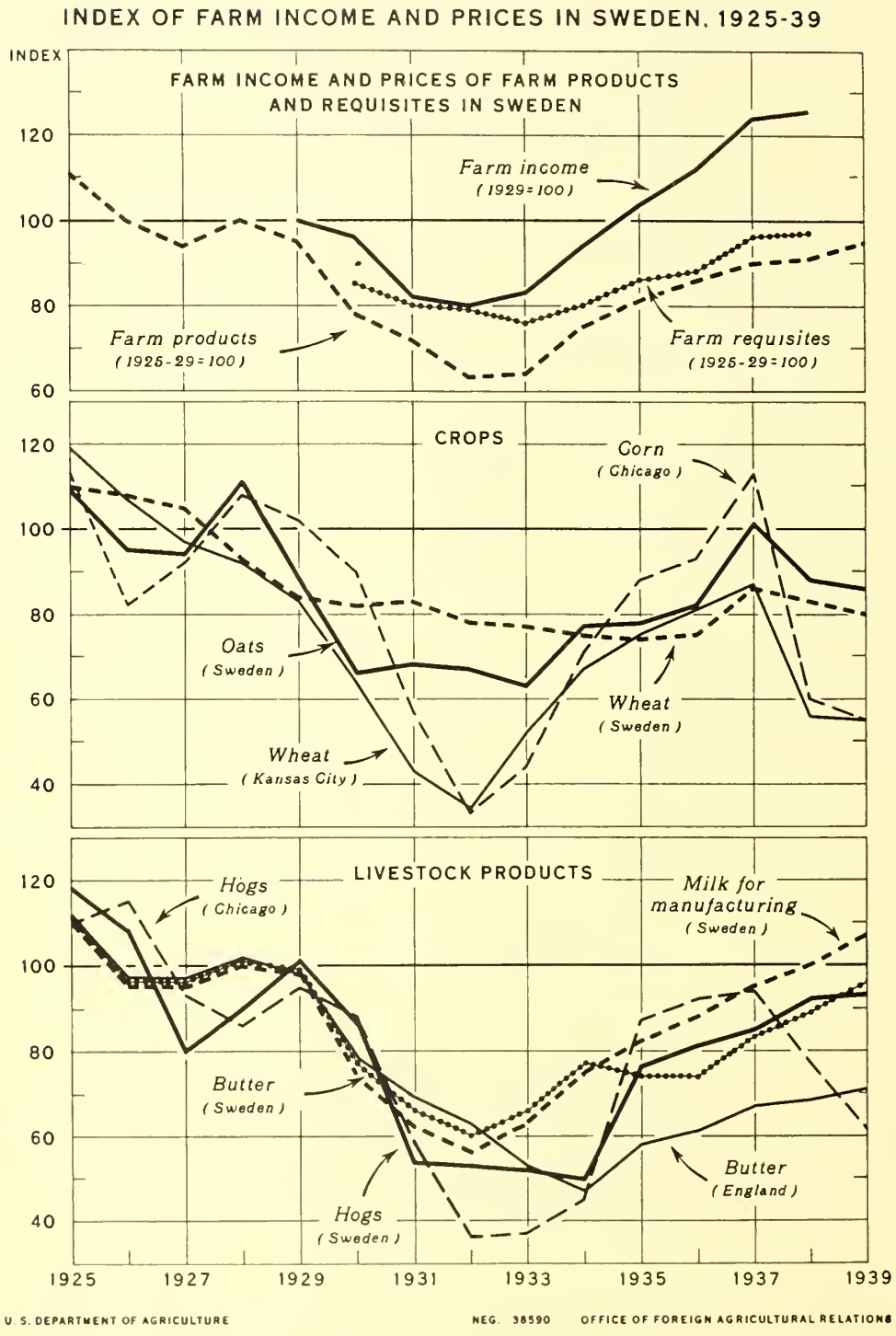

Figure 12.-Index of farm income and prices; 1925-1929 = 100 except in the case of farm income, for which 1929 = 100.

Bread grains. The first government measures affecting bread grains were the milling quotas introduced in 1930, stipulating that specified minimum percentages of home-grown wheat and rye must be mixed with imported grain, and that specified percentages of domestic flour must be mixed with imported flour. The percentages were varied from time to time according to the supply of domestic grain suitable for milling, and were lowest in June 1932, when wheat flour was required to consist of at least 50 percent domestic wheat and rye flour of at least 30 percent domestic rye. In the summer of 1940 an average of 97 percent domestic wheat and 90 percent domestic rye was required. In addition, a special import duty was applied to imported bread grains, and imports were made subject to direct control. To this measure were added minimum price provisions for domestic wheat and rye, and in 1931 the Swedish Grain Association agreed to purchase at certain fixed prices under government guarantee against loss all millable Swedish bread grains still unsold on June of the following year. In order to obtain part of the funds for the price-stabilization operations, a processing tax on flour was instituted in 1934.

The Association acquired a far larger quantity of grain than could be used for domestic milling because of unusually large harvests during the 1932-1935 period and also because some of the grain normally fed was instead being offered to the Association. The combined surplus grain acquired during these years amounted to 750,000 tons, nearly half of which was eventually exported, and about one-third was denatured for use as feed, the remainder being held by the Association. Disposal of this surplus involved heavy losses to the government.

In 1936 the system of guaranteed purchases was replaced by a subsidy purchase plan, under which purchases of not more than 165,000 tons could be made to prevent too violent a fluctuation of prices. The government announced what it considered a fair price, wide variations from which were to be prevented by the use of various government measures.

Feed grains. With wheat and rye prices in Sweden largely independent of and well above world prices, the production of bread grains tended to increase at the expense of feed grains. This unbalance necessitated action to support the price of feed crops; furthermore, the need for funds to operate the livestock control program resulted in the application of special import duties on oil meal and cake. A processing tax on domestic production was also instituted in 1933, as well as an import duty in 1934 on such feeds as corn, oats, and bran. These restrictions were supplemented by the requirement of a fixed percentage of domestic oats in oatmeal and, since 1936, by export subsidies.

LIVESTOCK PRODUCTION MEASURES

Dairy products. Although prices of livestock products declined later than did grain prices, the sharp decline in 1930-1932 together with the decreasing world export market, necessitated measures for the relief of the dairy industry. The first and most rapid decline was in the price of milk used for manufacturing. In 1932 the government intervened by establishing a milk control to pay export subsidies on butter and other dairy products and to subsidize their manufacture. Funds were derived

from a tax on all milk sold from farms, supplemented by import duties on dairy products and by a processing tax and duties on margarine. In addition, restrictions were placed on the importation of dairy products. The major portion of the expenditures has been in the form of a price adjustment subsidy for the manufacturer of dairy products. It is estimated that total expenditures under the milk control plan during the 4 years 1934-1937 were equivalent to about 20 percent of the total value of milk sales in Sweden during that period. Export subsidies paid on butter from 1933 to 1938 averaged the equivalent of 6.86 cents per pound.

Meat The decline in world prices, particularly of bacon, and especially the imposition of the British bacon import quota in 1932, greatly reduced Swedish pork exports, throwing the surplus on the home market. Pork prices in Stockholm in 1933 had dropped to about 50 percent below the 1929 level. Accordingly, in 1934 meat imports were restricted and export subsidies provided with funds derived from import duties on feed and from a special slaughter processing tax on cattle and hogs. Government aid was provided in 1933 through a loan for the construction of cooperative packing plants, by which the program was administered.

Eggs Similar measures were instituted for eggs, consisting of a special import duty, import restrictions, and an export subsidy instituted in 1934.

EFFECT OF RELIEF MEASURES

The success of the various agricultural relief measures in Sweden is evidenced partly by the higher price level of Swedish agricultural products during the depression than of those prevailing on the world markets. Whereas world grain prices in 1932-1933 had declined by 50 to 65 percent below the 1925-1929 level, the prices of wheat and rye in Sweden declined by only 23 percent, and prices of barley and oats were only 38 percent below the 1925-1929 level. Since 1933 Swedish grain prices have improved but in 1938 and 1939 they were still 15 to 20 percent below the 1925-1929 level, while world prices of wheat and corn had again declined by roughly 40 percent.

Prices of Swedish livestock products declined more severely during the depression, but have since recovered more completely than have grain prices. In 1932 prices of milk used for manufacturing and of butter had dropped about 40 percent below the 1925-1929 level, but by 1938 had practically regained their former level. At the same time world butter prices, as reflected by the price of Danish export butter, had dropped 50 to 60 percent by 1934, and in 1938-1939 were still about 30 percent below the 1925-1929 average. Prices of cattle and hogs in Sweden declined by about 50 percent during the depression and also recovered nearly their former level in 1939, while hog prices in the United States declined by about 64 percent, and with the cyclical variations were still in 1939 nearly 40 percent below the 1925-1929 level. Egg prices in Sweden also declined by more than 40 percent during the depression, but recovery has been slower; prices in 1939 were still 16 percent below the base period.

For all farm products the combined price index in Sweden reached its lowest point in 1932-1933, at about 36 percent below the level of 1925-1929. However, the

prices of commodities purchased by farmers (excluding labor) declined by only 24 percent, thus leaving farm prices at a disadvantage compared with those of industrial products. By 1939 the prices of both farm products and purchases had regained their former level. During the worst of the depression in 1932 the purchasing power of farm products was only about 80 percent. It regained a level of 94 percent in 1938 and was still higher in 1939.

Thus far in this discussion only prices have been considered. Actual farm income improved more rapidly because of an increased volume of production (see figure 4). The total income from the sale of crops declined only slightly during the one year 1931 and until 1936 rose sharply with increased production during the subsequent period of recovery. Income from the sale of various kinds of livestock and its products had declined nearly 30 percent by 1932 and 1933, but by 1936 exceeded the 1929 level.

The improved prices and assurance of government relief measures stimulated an increased volume of agricultural production. Most of the increase in production has been consumed on the domestic market, where the higher degree of prosperity encouraged higher consumption and a higher standard of living. On the other hand, exports of the principal livestock products have not increased appreciably above the 1930 level, chiefly because of the greater trade barriers and the difficulty of finding export outlets as other countries increased production to achieve national self-sufficiency. Exports of butter and eggs in 1938 had just about regained the 1930 level, whereas exports of pork, due primarily to the British quota, were only about half the former level (see figure 13). However, the increased production of grain and the various measures restricting imports into Sweden have permitted domestic grain to replace import supplies almost entirely.

The various agricultural relief measures were first adopted as temporary expedients, intended to remedy a foreign market situation thought to be only temporarily unbalanced as a result of the depression. However, the depression was a long one and was accompanied by increasing world trade barriers. After nearly 10 years most of the relief measures in Sweden are still in force, and additional ones have been added; few have been discarded. Now, under war conditions and with the prospect of abnormal foreign trade relationships for some time after the war ends, an increasing degree of government control of and relief for agriculture appears likely for some time to come.

EFFECTS OF WAR ON SWEDISH AGRICULTURE

Even though Sweden is not at war, its agriculture will be severely affected if the present war continues because of its geographical position and its dependence on the now disrupted foreign trade. Sweden is hemmed in by the blockades of both belligerents and is shut off from much of its former markets and from its principal sources of agricultural raw materials. Swedish shipping, with the exception of that with countries bordering on the Baltic Sea, normally flows through the Skagerrack, the strait between Denmark and Norway.

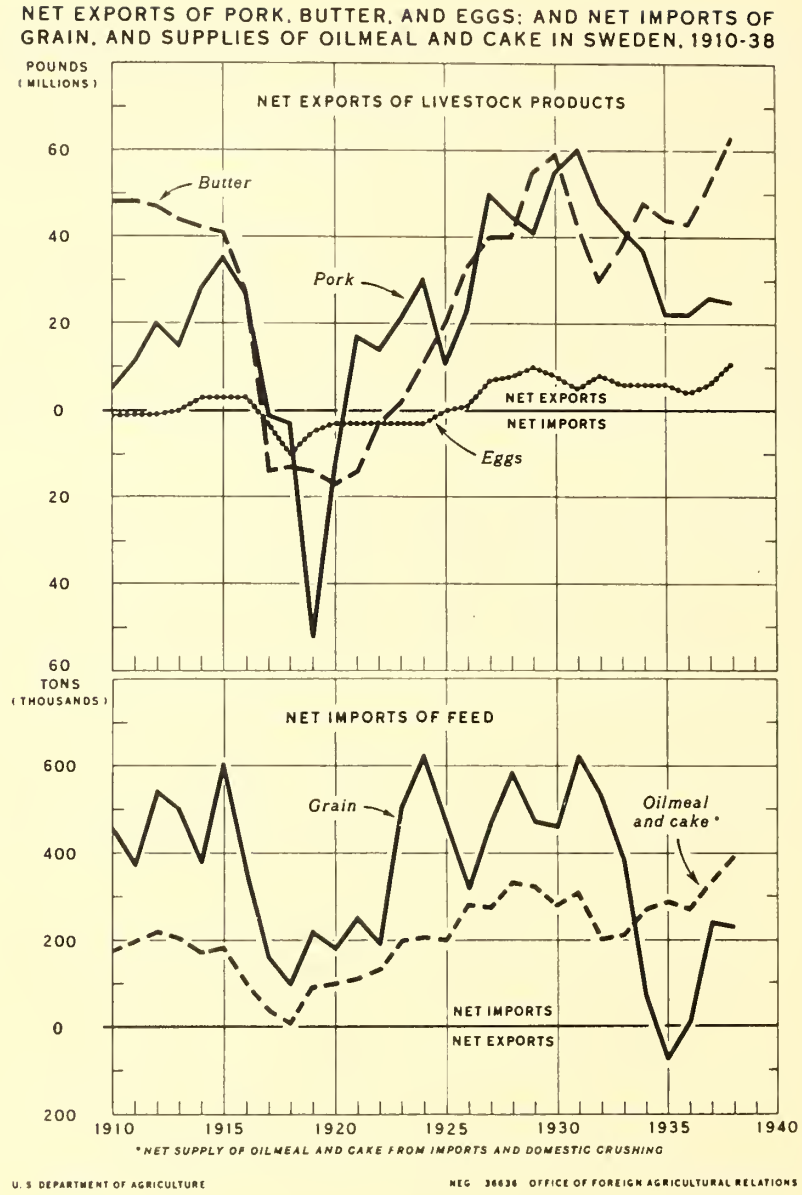

Figure 13.-Net exports of Swedish livestock products and net imports of feed, 1910 to 1938.

EFFECTS OF THE WORLD WAR

An indication of the probable effect on Swedish agriculture of a prolonged war may be obtained from an examination of developments during the World War. In some respects, with increased production, Sweden is now in a better position than at the outbreak of the World War; however, Swedish trade with foreign countries is now affected more severely than it was during the first 3 years of the World War, until the blockade was tightened and the submarine campaign intensified in 1917. During

the World War Germany controlled the Baltic Sea and the British Navy the North Sea. As the war progressed control over trade became stricter, and each belligerent exacted binding guarantees from Swedish importers that goods would not be exported to the enemy. Supplies became short and had to be rationed to individuals, and raw materials were rationed to industries. Exportation of an increasing number of items was prohibited.

Net imports of grain declined from 1,036 million pounds in 1912-1913 to only 210 million in 1918 (see table 8 and figure 13), a reduction to only one-fifth of the former level. Imports of oil meal and cake for dairy feed were practically stopped, and those of vegetable oils for the manufacture of margarine were stopped entirely. Primarily because of the shortage of fertilizers, but also because of unfavorable seasons, the total domestic production of grain was reduced by nearly one-fourth for two successive years, 1917 and 1918.

TABLE 8 *Production and trade of principal agricultural products in Sweden, World War period compared with 1939*

ITEM	AVERAGE 1912-1913	1918	1939	PERCENTAGE OF 1912-1913 LEVEL	
				1918	1939
	Thousands	*Thousands*	*Thousands*	*Percent*	*Percent*
Livestock on farms:					
Cattle	[1] 3,069	2,584	2,975	84	97
Hogs	[1] 1,023	634	1,315	62	128
	Million	*Million*	*Million*		
Grain and feed:	*pounds*	*pounds*	*pounds*		
Grain, domestic production	6,260	4,792	7,412	77	118
Grain, net imports	1,036	210	[2] 450	20	[2] 43
Total supply	7,296	5,002	7,862	69	108
Oil meal and cake imports	368	14	[2] 485	4	[2] 132
Dairy products:					
Production in creameries:					
Milk entered	2,880	1,290	[3] 6,600	45	[3] 229
Butter produced	70	23	[3] 177	33	[3] 253
Cheese produced	32	12	[3] 81	38	[3] 253
Margarine produced	54	0	129	0	239
Net exports of livestock products:					
Butter	45	[4] -11	[2] 63	0	[2] 140
Pork (cured and fresh)	17	[5] -2	[2] 25	0	[2] 147
Eggs	[4] -1	[4] -9	[2] 11	0	[2] +

[1] Average 1913-1914.

[2] For 1938.

[3] Total production of dairy products has not increased as much as these data on creameries would indicate (see text).

[4] Net imports.

[5] Net imports in 1919 amounted to 56 million pounds.

Compiled from official sources.

By 1918 the shortage of feed from smaller crops and greatly reduced imports forced a reduction in livestock numbers amounting to 38 percent in the case of hogs and 16 percent in the case of cattle. The quantity of milk delivered to commercial dairies and creameries fell to less than half the former level, and the quantity of creamery butter and cheese produced fell to only about one-third. Inability to obtain imported vegetable oils completely stopped the production of margarine.

By 1918 the exports of principal livestock products had declined so sharply that imports greatly exceeded exports of butter, eggs, and pork. The reduced numbers of livestock greatly retarded the restoration of production to former levels. Pork imports were greatest in 1919, and exports did not exceed imports again until 1921. Butter was on a net import basis until 1923 and eggs until 1926.

EFFECTS OF THE PRESENT WAR

Under the present war Sweden is again faced with problems of maintaining vitally needed import supplies, finding export outlets for the country's surplus products - particularly for the important forest and mineral products - preventing the exportation of goods needed domestically, and of assuring conservation and equitable distribution of available supplies. Several government measures with these objects in view have been adopted since the beginning of the European war in September 1939.

Immediately upon the outbreak of war Sweden left the sterling block and pegged the Swedish krona to the American dollar at the official rate of 4.20 kronor per dollar. Modified foreign exchange control was later inaugurated. Import licenses were required on coal and coke and a long list of "nonessential items" in order to control the flow of foreign exchange. Export embargoes were placed on a number of items needed in the country, the principal agricultural items being tobacco and vegetable oils. All available stocks of a number of important items were taken over by the government, including (in the sequence in which the orders were issued) bran, oats, soap, margarine, vegetable oil, wheat, rye, cotton, wool, and molasses. The sugar industry was placed under complete government control. Rationing was instituted for sugar, coffee, tea, cocoa, margarine, bread, flour, pork products, soap, and petroleum products.

Other measures included a 20-million-kronor appropriation for the storage of agricultural products and 30 million for agricultural adjustment. During the German-Norwegian hostilities Swedish ships abroad were ordered to return to foreign ports, and in many cases cargoes were discharged to avoid the dangers of the blockade and the war zone. Because of the shortage of petroleum fuels, wood and charcoal gas generators are to be extensively used on tractors and trucks, and it is reported that a German turpentine-burning tractor has recently been placed on the Swedish market. In order to alleviate the labor shortage, due to increased military duty, the enactment of the law limiting agricultural working hours was suspended from July 1 until October 15, 1940.

Industrial activity, which in August 1939 had reached a peacetime record with an index of 126 (1935 - 100), declined by about 16 percent during the first 12

months of the war to 106 in August 1940. Prices, on the other hand, have increased. The cost of living had risen 15.6 percent by September 1940, while the index of combined wholesale prices rose 32 percent. Feed and fertilizer prices increased 34 and 32 percent, respectively, while prices of livestock products rose only 17 percent The greatest price increase of all was a 63-percent rise in price of imported commodities, whereas export prices rose only 25 percent.

The sharp rise in import prices has been due primarily to shipping difficulties, higher freight and insurance rates, and the inability to carry on a normal volume of trade through the blockade. During June and July 1940 the value of total imports was 32 percent lower and of exports 47 percent lower than during the same months in 1939. After allowing for the higher prices it is estimated that the actual volume of both imports and exports during these months amounted to only about 42 percent of the level a year earlier.

Bread grains Swedish agriculture is now somewhat more nearly self-sufficient than during the World War because of increased domestic production. Whereas in 1909-1913 about 341,000 tons of bread grains were imported annually, equivalent to 27 percent of the total bread-grain requirements, production has since been greatly increased, with the result that annual bread-grain imports during the 3 years 1936-1938 amounted to only 24,000 tons, or only about 2 percent of total requirements. However, production from the 1940 crop is far below that of recent years. Severe winter weather, a drought, and a late spring greatly reduced output, particularly of winter grains. Total production of bread grains, wheat and rye, in 1940 is estimated at about 814,000 tons, or about 60 percent of the 1,360,000 tons in 1939 and the average of 1,311,000 during 1937-1939.

It is estimated that the 1940 crop plus about 386,000 tons of additional bread grain carried over from previous years should provide about 90 percent as much as has been available from recent crops. This amount should be sufficient for human needs until 1941 crops are available. Nevertheless breads, crackers, and flour are being rationed to prevent hoarding. Minimum prices to farmers for millable wheat of the 1940 crop were fixed at a price equivalent to $1.62 per bushel, compared with $1.40 for the 1939 crop.

Feed grains In the case of feed grains, the increased domestic production has not been sufficient to keep pace with increased feed requirements; consequently, imports of feed grains have recently been greater than before the World War, though in 1936-1938 they amounted to only 8.5 percent of the total feed-grain requirements. For all grains the degree of the country's self-sufficiency was increased from about 85 percent before the World War to 94 percent during recent years.

Unfavorable weather in 1940 has also curtailed the production of feed grain and forage. No exact information as to the size of the 1940 crop is available, but estimates indicate some reduction in feed grain and a sharp reduction in hay. Reports indicate that the government is controlling the movement of the hay crop and is planning loans to farmers in distressed areas for the purchase of hay and other feed.

Consequently, if domestic production could be maintained at recent levels no great reduction in livestock numbers would be necessary as grain imports are cut off. However, the poor 1940 harvest and reduced imports have caused an immediate food shortage, while the prospective deficiency in fertilizers may decrease domestic production in subsequent war years. Effective September 1, 1940, sales of the principal feeds - oil meal and cake, bran, corn, and molasses - for the succeeding 12 months were made subject to license, with allocations reduced to 40 percent of the quantities consumed during the crop year 1938-39.

Dairy products: Dairy production, already decreasing, may be expected to drop 20 to 25 percent solely as a result of the shortage of oil meal and cake, if a total blockade is continued. In addition any shortage of grain might be expected to result in some further decline in milk production. During the World War the quantity of milk delivered to commercial dairies and creameries had declined by 1918 to only 55 percent of the 1913 level. Since nearly half of the total milk production at that time was used for various purposes on the farms, it is estimated that total production declined by about 30 percent. The quantity required for direct consumption as fluid milk tends to remain constant; consequently, the reduction must take place primarily in the supply for manufacturing in creameries. Creamery butter and cheese production during the World War dropped to only about one-third of the pre-war level.

The shortage of fats and oils forces an almost complete stoppage of margarine manufacture, and as a result consumers are forced to use butter in place of margarine or to curtail consumption severely. Because of the greatly reduced butter production and the inability to obtain margarine, butter supplies for export were exhausted by 1917, and butter was on a net import basis until 1923. Although total butter production, including that of farm butter, has probably increased by more than 40 percent since 1909-1913, the consumption of margarine has more than doubled, and in 1939 was nearly as great as the consumption of butter and twice as great as butter exports. Consequently, as raw material supplies for margarine are shut off, the production of butter alone will not be sufficient to meet the combined butter-margarine consumption requirements, and butter may again be on an import basis.

Hogs Although domestic grain production has been increased since before the World War, hog numbers have shown a proportionately greater increase. Consequently, any reduction in feed imports or in domestic production may be expected again to force a considerable decline in hog numbers. During the World War numbers were reduced to only 38 percent of the 1913-1914 level. At present only about 13 percent of the estimated total pork production is exported; therefore even a relatively small feed shortage would be expected to cut off pork exports entirely. Since production depends heavily on skim milk for feed, any decline in dairy production would in turn also affect pork production. However, for a time meat supplies may be heavy because of forced slaughter to save feed and the inability to export bacon to Britain.

Poultry Fewer data are available concerning the changes in egg production; however, the industry depends largely on grain for feed, and it is estimated that only about 12 percent of the total production was exported in 1938. A feed shortage might, therefore, soon reduce egg production to a level below recent domestic consumption.

TABLE 9.—*Swedish trade with the United States in agricultural products, 1936-1938*
(Swedish data)

PRODUCT	QUANTITY				VALUE[1]
	1936	1937	1938	AVERAGE 1936-1938	AVERAGE 1936-1938
IMPORTS FROM THE UNITED STATES	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 dollars*
Livestock products					
Cured pork	139	105	376	207	24 4
Other meat products	509	371	267	382	61 0
Lard	206	65	126	132	17 0
Tallow	2,211	1,794	2,157	2,054	218 5
Hides, skins, furs	397	423	382	401	968 3
Total	3 462	2 758	3 308	3 176	1 289 2
Grain and feed					
Corn	434	-	114,957	38,464	545 1
Wheat	25 793	16 064	27,854	23 237	499 0
Rice	1,244	1,725	4,025	2 331	81 9
Rye	218	246	1,272	579	9 6
Other grain	59	58	59	59	1 5
Flour	22	85	218	108	6 3
Soybeans	17,689	-	-	5 896	100 4
Oil meal and cake	7 087	8 037	12,054	9,059	139 3
Total	52,546	26,215	160 439	79 733	1 383 1
Fruit, fresh					
Apples	17 457	15,367	25 869	19 564	925 9
Pears	7,525	6,557	10 315	8 132	456 3
Oranges	7,189	947	15,799	7 978	405 7
Grapes	985	984	2,161	1 377	129 7
Total	33 156	23,855	54 144	37 051	1,917 6
Fruit, dried					
Prunes	7 831	7 247	9,641	8,240	470 3
Raisins	5,499	6,607	8 295	6,800	427 0
Apples	3,119	2,653	3,636	3 136	295 5
Apricots, peaches	1,933	2 040	2,610	2,194	259 7
Pears	760	716	814	763	64 8
Mixed	7,742	7,293	10,358	8,464	530 1
Total	26,884	26,556	35,354	29,597	2 047 4
Cotton, raw	62,980	60,640	68,733	64 118	8 233 4
Tobacco, raw	8,669	9,393	9,784	9,282	2 494 8
Total agricultural	-	-	-	-	17,365 5
Total nonagricultural[2]	-	-	-	-	53 984 9
Total imports	-	-	-	-	71,350 4
EXPORTS TO THE UNITED STATES					
Livestock products					
Meat products	2	404	3	136	19 0
Hides, skins, furs	1 632	773	2,667	1,691	396 0
Others	-	-	-		36 1
Total	-	-	-	-	451 2
Vegetable products	-	-	-	-	42 2
Total agricultural	-	-	-	-	493 4
Total nonagricultural[3]	-	-	-	-	48 010 8
Total exports	-	-	-	-	48 504 2

[1] The average value of the Swedish krona in 1936-1938 was 25.37 cents.
[2] Principal nonagricultural imports from the United States were petroleum and automobiles
[3] The principal nonagricultural export to the United States was wood pulp.
Compiled from official sources.

TRADE WITH THE UNITED STATES

The greater part of Sweden's foreign trade has been with European countries, yet the United States in 1936-1938 was the principal supplier of several important agricultural commodities such as cotton, tobacco, and fruit, and the second most important supplier of wheat and corn. Among the nonagricultural products the United States was by far the most important supplier of automobiles and petroleum products. The principal Swedish export to the United States was wood pulp, for which this country was Sweden's second most important outlet. In 1939 Sweden was our fourth most important export market in continental Europe for agricultural products and ranked third as a continental market for all products.

The total value of Sweden's exports to all countries in 1936-1938 averaged the equivalent of 495 million dollars (see table 6), of which about 42 percent consisted of wood pulp, paper, and lumber; 16 percent of metals and metal products; 13 percent of minerals (principally iron ore); 9 percent of agricultural products (almost entirely livestock products); and about 20 percent of other nonagricultural products. Most of the wood pulp was shipped to the United Kingdom and the United States, most of the iron ore and metals to Germany and the United Kingdom, and most of the livestock products also to the United Kingdom and Germany. The United Kingdom took about 80 percent of Sweden's exports of pork and hogs, 59 percent of the eggs, and 40 percent of the butter; Germany took 51 percent of the butter exports, 41 percent of the eggs, and 19 percent of the hogs.

The percentage distribution of Sweden s total foreign trade in 1936-1938 by principal countries of origin (imports) and destination (exports) is as follows:

	IMPORTS (BY ORIGIN) *Percent*	EXPORTS (BY DESTINATION) *Percent*
Europe		
British Isles	13 1	23 5
Germany	21 9	16 8
Northern countries		
Denmark Norway Finland	7 7	15 6
Western countries		
Netherlands Belgium France	10 5	10 5
Other Europe	13 4	10 6
Total	66 6	77 0
United States	14 3	10 8
Other countries	19 1	12 2
Total	100 0	100 0

It will be noted that two-thirds of the imports and more than three-fourths of the exports were to European countries, of which the United Kingdom and Germany together accounted for more than half. The United States supplied only 14.3 percent of Swedish imports and took 10.8 of her exports.

About one-fourth of Sweden's imports from the United States were of agricultural products, with an average value of 17.4 million dollars in 1936-1938 (see table 9). Nearly half of this consisted of 128,000 bales of cotton, valued at 8.2 million dollars. The second most important item was 9.3 million pounds of tobacco valued at 2.5 million dollars, consisting of about 4.5 million pounds of flue-cured, 2.9 million

of fire-cured, and 0.7 million of burley leaf, and about 1.2 million of scraps and stems. Other groups of products, each with a value of between 1 and 2 million dollars, were dried fruit, fresh fruit, grain, and livestock products (largely hides and skins). Our agricultural imports from Sweden have been limited almost entirely to about half a million dollars' worth of hides, skins, and furs. Sweden has therefore been an excellent market for our agricultural products in return for our imports of wood pulp.

The war has now practically closed this market for our exports. It is possible that the United States may gain some advantage in increased exports to the British market of cured pork and possibly of eggs, as supplies of these products from Sweden, as well as from Denmark and the Netherlands, are cut off from Britain by the war. However, any advantage gained from increased shipments of livestock products to Britain as a result of that country's loss of its Swedish supplies will be far outweighed by the loss of the normal Swedish market for our other agricultural exports.

SUMMARY AND CONCLUSIONS

Sweden's agriculture is directed primarily at supplying its domestic market. Production of the major crops has been sufficient recently to meet domestic requirements, although additional concentrate feed and oilseeds must be imported in order to sustain livestock production and to meet the requirements for edible fats and oils. Production of livestock, especially of dairy products, pork, and eggs, has been developed to a level in excess of domestic requirements, permitting exportation of increasing quantities to other European countries, particularly to the United Kingdom and Germany.

In the export market nonagricultural items far overshadow agricultural products. Forest products, lumber, pulp, and paper account for 42 percent of the total value of exports, while minerals and metals account for 29 percent. Agricultural exports, principally of livestock products, make up only about 9 percent.

Sweden's agricultural resources are limited. Less than 10 percent of the land area is tillable; half is covered with forests and an additional one-third is nonproductive. Cropland can be extended only slowly, with difficulty and at considerable expense for drainage, clearing, removing stones, etc. Furthermore, the cool climate and relatively short and dry season limit the kind of crops that may be grown.

Probably the most important development in Swedish agriculture since the turn of the century has been the rapid increase in production, even without appreciably increasing the area of tillable land. Higher yields per acre as a result of better and more efficient farming have brought about an increase of nearly 25 percent in total crop production since 1909-1913. Livestock production has also greatly increased. Since 1909-1913 butter production has probably increased by about 40 percent, although the number of cows has remained about the same. Greater production has made possible increased exports of livestock products and at the same time a reduction in imports of grain.

Had the present war not upset economic conditions Sweden's agricultural production would probably have continued to expand as a result of further advances in efficient farm management However, the difficulties in the way of expanding the export market would have thrown the increase in production on the home market, where the level of consumption is already relatively high To meet this situation further efforts would probably have been made to reduce imports and also to divert part of the production to other types of products for which domestic consumption could be increased, such as the protective foods certain livestock products, fruits, and vegetables. Another possibility considered for increasing domestic consumption is that of raising the standard of living among the poorer classes possibly through a two price system on the domestic market.

One of the most important problems confronting Swedish agriculture is that of finding some way to increase domestic supplies of edible fat (for margarine) and of high protein feeds (for cattle) to replace the relatively large imports of vegetable oils meal and cake oilseeds and nuts The solution of this problem is not yet in sight but efforts have recently been made to introduce the cultivation of soybeans.

The war and the German control of the waters surrounding Swedish ports have cut off exports to Great Britain formerly Sweden's principal export outlet for cured pork, butter, and eggs Of even greater significance is the fact that the war cuts off most of Sweden's former overseas market for forest products. In addition, the blockade stops most of Sweden's import supply of concentrate feed, oilseeds, and commercial fertilizer. Together with the poor harvest in 1940 this shortage of imported feed and raw materials for margarine and fertilizer, if continued, will force a reduction in livestock production to an extent that will leave none for export and will probably necessitate a reduction in the level of domestic consumption.

Sweden has been an excellent market for United States agricultural products but has exported very little of her agricultural products to this country. During recent years (1936-1938) Sweden imported from the United States about 71 million dollars worth of products of which 17 million dollars worth were agricultural - chiefly cotton tobacco fresh and dried fruits, and grain. In return Sweden's exports to this country averaged only about 48 million dollars in value of which more than three-fourths consisted of wood pulp and paper; only about 0.5 million dollars' worth were of agricultural products, primarily hides, skins, and furs. As long as the war blockades continue, this excellent market is virtually lost to American farm products.

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